

SEQUENCE LISTING

<110> Millennium Pharmaceuticals, Inc.  
Silos-Santiago, Inmaculada  
Karicheti, Venkateswarlu  
Eliasof, Scott D.

<120> METHODS AND COMPOSITIONS FOR TREATING  
PAIN AND PAINFUL DISORDERS USING 16386, 15402, 21165, 1423,  
636, 12303, 21425, 27410, 38554, 38555, 55063, 57145, 59914,  
94921, 16852, 33260, 58573, 30911, 85913, 14303, 16816,  
17827 OR 32620

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Pro Gly Glu Phe Glu Ser Lys Tyr Phe Glu Phe His Gly Val Arg Leu  
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ccg ccc ttc tgc cgc ggg aag atg gag gag atc gcc aac ttc ccg gtg 149  
Pro Pro Phe Cys Arg Gly Lys Met Glu Glu Ile Ala Asn Phe Pro Val  
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Arg Pro Ser Asp Val Trp Ile Val Thr Tyr Pro Lys Ser Gly Thr Ser  
45 50 55

ttg ctg cag gag gtg gtc tac ttg gtg agc cag ggc gct gac ccc gat	245
Leu Leu Gln Glu Val Val Tyr Leu Val Ser Gln Gly Ala Asp Pro Asp	
60 65 70 75	
gag atc ggc ttg atg aac atc gac gag cag ctc ccg gtc ctg gag tac	293
Glu Ile Gly Leu Met Asn Ile Asp Glu Gln Leu Pro Val Leu Glu Tyr	
80 85 90	
cc <sup>o</sup> cca cag ccg ggc ctg gac atc atc aag gaa ctg acc tct ccc cgc ctc	341
Pro Gln Pro Gly Leu Asp Ile Ile Lys Glu Leu Thr Ser Pro Arg Leu	
95 100 105	
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Ile Lys Ser His Leu Pro Tyr Arg Phe Leu Pro Ser Asp Leu His Asn	
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gga gac tcc aag gtc atc tat atg gct cgc aac ccc aag gat ctg gtg	437
Gly Asp Ser Lys Val Ile Tyr Met Ala Arg Asn Pro Lys Asp Leu Val	
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gtg tct tat tat cag ttc cac cgc tct ctg cgg acc atg agc tac cga	485
Val Ser Tyr Tyr Gln Phe His Arg Ser Leu Arg Thr Met Ser Tyr Arg	
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Gly Thr Phe Gln Glu Phe Cys Arg Arg Phe Met Asn Asp Lys Leu Gly	
160 165 170	
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Tyr Gly Ser Trp Phe Glu His Val Gln Glu Phe Trp Glu His Arg Met	
175 180 185	
gac tcg aac gtg ctt ttt ctc aag tat gaa gac atg cat cgg gac ctg	629
Asp Ser Asn Val Leu Phe Leu Lys Tyr Glu Asp Met His Arg Asp Leu	
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gtg acg atg gtg gag cag ctg gcc aga ttc ctg ggg gtg tcc tgt gac	677
Val Thr Met Val Glu Gln Leu Ala Arg Phe Leu Gly Val Ser Cys Asp	
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Lys Ala Gln Leu Glu Ala Leu Thr Glu His Cys His Gln Leu Val Asp	
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Gln Cys Cys Asn Ala Glu Ala Leu Pro Val Gly Arg Gly Arg Val Gly	
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Leu Trp Lys Asp Ile Phe Thr Val Ser Met Asn Glu Lys Phe Asp Leu	
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Val Tyr Lys Gln Lys Met Gly Lys Cys Asp Leu Thr Phe Asp Phe Tyr	
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Leu *	
caaaaagtccct gtatgcattc atttattccct tgctggacaa actctggaaag cagcgtgtga	985
aacagcgggg gaagggaga gcccgcgtgag cggagggagt gtgatgattc ccaaccgaag	1045

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 35 40 45  
 Trp Ile Val Thr Tyr Pro Lys Ser Gly Thr Ser Leu Leu Gln Glu Val  
 50 55 60  
 Val Tyr Leu Val Ser Gln Gly Ala Asp Pro Asp Glu Ile Gly Leu Met  
 65 70 75 80  
 Asn Ile Asp Glu Gln Leu Pro Val Leu Glu Tyr Pro Gln Pro Gly Leu  
 85 90 95  
 Asp Ile Ile Lys Glu Leu Thr Ser Pro Arg Leu Ile Lys Ser His Leu  
 100 105 110  
 Pro Tyr Arg Phe Leu Pro Ser Asp Leu His Asn Gly Asp Ser Lys Val  
 115 120 125  
 Ile Tyr Met Ala Arg Asn Pro Lys Asp Leu Val Val Ser Tyr Tyr Gln  
 130 135 140  
 Phe His Arg Ser Leu Arg Thr Met Ser Tyr Arg Gly Thr Phe Gln Glu  
 145 150 155 160  
 Phe Cys Arg Arg Phe Met Asn Asp Lys Leu Gly Tyr Gly Ser Trp Phe  
 165 170 175  
 Glu His Val Gln Glu Phe Trp Glu His Arg Met Asp Ser Asn Val Leu  
 180 185 190  
 Phe Leu Lys Tyr Glu Asp Met His Arg Asp Leu Val Thr Met Val Glu  
 195 200 205  
 Gln Leu Ala Arg Phe Leu Gly Val Ser Cys Asp Lys Ala Gln Leu Glu  
 210 215 220  
 Ala Leu Thr Glu His Cys His Gln Leu Val Asp Gln Cys Cys Asn Ala  
 225 230 235 240  
 Glu Ala Leu Pro Val Gly Arg Gly Arg Val Gly Leu Trp Lys Asp Ile  
 245 250 255

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accccgccgc ctgcgcaccc acggccggcg aagccgcacc cgccgcggcgc ccccaaggcc 240  
aggggaggag cctaaggacc cggacgagcg ccgcgtccagt aggtgacaag aggaaacaag 300  
aacctcagtt caggggaaac acagcaagga aatgtgagcc ccaggctgca gaaggaagag 360  
tcagtgaatg gctgcggtgt gacaac atg cac cag tgg ctt ctg ctg gcc 413  
Met His His Gln Trp Leu Leu Leu Ala  
1 5

gca tgc ttt tgg gtg att ttc atg ttc atg gtg gct agc aag ttc atc 461  
Ala Cys Phe Trp Val Ile Phe Met Phe Met Val Ala Ser Lys Phe Ile  
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acg ttg acc ttt aaa gac cca gat gtg tac agt gcc aaa cag gag ttt 509  
Thr Leu Thr Phe Lys Asp Pro Asp Val Tyr Ser Ala Lys Gln Glu Phe  
30 35 40

ctg ttc ctg aca acc atg ccg gaa gtg agg aag ttg cca gaa gag aag 557  
Leu Phe Leu Thr Thr Met Pro Glu Val Arg Lys Leu Pro Glu Glu Lys  
45 50 55

cac att cct gag gaa ctg aag cca act ggg aag gag ctt cca gac agc 605  
His Ile Pro Glu Glu Leu Lys Pro Thr Gly Lys Glu Leu Pro Asp Ser  
60 65 70

cag ctc gtt cag ccc ctg gtc tac atg gag cgc ctg gaa ctc atc aga 653  
Gln Leu Val Gln Pro Leu Val Tyr Met Glu Arg Leu Glu Leu Ile Arg  
75 80 85

aac gtc tgc agg gat gat gcc ctg aag aat ctc tcg cac act cct gtc 701  
Asn Val Cys Arg Asp Asp Ala Leu Lys Asn Leu Ser His Thr Pro Val  
90 95 100 105

tcc aag ttt gtc ctg gac cga ata ttt gtc tgt gac aag cac aag att 749  
Ser Lys Phe Val Leu Asp Arg Ile Phe Val Cys Asp Lys His Lys Ile  
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ctt ttc tgc cag act ccc aaa gtg ggc aac acc cag tgg aag aaa gtg 797  
Leu Phe Cys Gln Thr Pro Lys Val Gly Asn Thr Gln Trp Lys Lys Val  
125 130 135

ctg att gtt cta aat gga gca ttt tct tcc att gag gag atc ccc gaa 845  
Leu Ile Val Leu Asn Gly Ala Phe Ser Ser Ile Glu Glu Ile Pro Glu  
140 145 150

aac gtg gtg cac gac cac gag aag aac ggc ctt cct cgg ctc tct tcc	893
Asn Val Val His Asp His Glu Lys Asn Gly Leu Pro Arg Leu Ser Ser	
155 160 165	
ttc agt gat gca gaa att cag aag cga ttg aaa aca tac ttc aag ttt	941
Phe Ser Asp Ala Glu Ile Gln Lys Arg Leu Lys Thr Tyr Phe Lys Phe	
170 175 180 185	
ttt att gta aga gat ccc ttc gaa aga ctt att tct gca ttt aag gat	989
Phe Ile Val Arg Asp Pro Phe Glu Arg Leu Ile Ser Ala Phe Lys Asp	
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aaa ttt gtt cac aat ccc cgg ttt gag cct tgg tac agg cat gag att	1037
Lys Phe Val His Asn Pro Arg Phe Glu Pro Trp Tyr Arg His Glu Ile	
205 210 215	
gct cct ggc atc atc aga aaa tac agg agg aac cgg aca gag acg cgg	1085
Ala Pro Gly Ile Ile Arg Lys Tyr Arg Arg Asn Arg Thr Glu Thr Arg	
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Gly Ile Gln Phe Glu Asp Phe Val Arg Tyr Leu Gly Asp Pro Asn His	
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Arg Trp Leu Asp Leu Gln Phe Gly Asp His Ile Ile His Trp Val Thr	
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Tyr Val Glu Leu Cys Ala Pro Cys Glu Ile Met Tyr Ser Val Ile Gly	
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cac cac gag acc ctg gag gac gat gcc cca tac atc tta aaa gag gct	1277
His His Glu Thr Leu Glu Asp Asp Ala Pro Tyr Ile Leu Lys Glu Ala	
285 290 295	
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Gly Ile Asp His Leu Val Ser Tyr Pro Thr Ile Pro Pro Gly Ile Thr	
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Val Tyr Asn Arg Thr Lys Val Glu His Tyr Phe Leu Gly Ile Ser Lys	
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Phe Gly Tyr Gln Lys Pro Asp Phe Leu Leu Asn *	
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 Asp Val Tyr Ser Ala Lys Gln Glu Phe Leu Phe Leu Thr Thr Met Pro  
 35 40 45  
 Glu Val Arg Lys Leu Pro Glu Glu Lys His Ile Pro Glu Glu Leu Lys  
 50 55 60  
 Pro Thr Gly Lys Glu Leu Pro Asp Ser Gln Leu Val Gln Pro Leu Val  
 65 70 75 80  
 Tyr Met Glu Arg Leu Glu Leu Ile Arg Asn Val Cys Arg Asp Asp Ala  
 85 90 95  
 Leu Lys Asn Leu Ser His Thr Pro Val Ser Lys Phe Val Leu Asp Arg  
 100 105 110  
 Ile Phe Val Cys Asp Lys His Lys Ile Leu Phe Cys Gln Thr Pro Lys  
 115 120 125  
 Val Gly Asn Thr Gln Trp Lys Lys Val Leu Ile Val Leu Asn Gly Ala  
 130 135 140  
 Phe Ser Ser Ile Glu Glu Ile Pro Glu Asn Val Val His Asp His Glu  
 145 150 155 160  
 Lys Asn Gly Leu Pro Arg Leu Ser Ser Phe Ser Asp Ala Glu Ile Gln  
 165 170 175  
 Lys Arg Leu Lys Thr Tyr Phe Lys Phe Phe Ile Val Arg Asp Pro Phe  
 180 185 190  
 Glu Arg Leu Ile Ser Ala Phe Lys Asp Lys Phe Val His Asn Pro Arg  
 195 200 205  
 Phe Glu Pro Trp Tyr Arg His Glu Ile Ala Pro Gly Ile Ile Arg Lys  
 210 215 220  
 Tyr Arg Arg Asn Arg Thr Glu Thr Arg Gly Ile Gln Phe Glu Asp Phe  
 225 230 235 240  
 Val Arg Tyr Leu Gly Asp Pro Asn His Arg Trp Leu Asp Leu Gln Phe  
 245 250 255  
 Gly Asp His Ile Ile His Trp Val Thr Tyr Val Glu Leu Cys Ala Pro  
 260 265 270  
 Cys Glu Ile Met Tyr Ser Val Ile Gly His His Glu Thr Leu Glu Asp  
 275 280 285  
 Asp Ala Pro Tyr Ile Leu Lys Glu Ala Gly Ile Asp His Leu Val Ser  
 290 295 300  
 Tyr Pro Thr Ile Pro Pro Gly Ile Thr Val Tyr Asn Arg Thr Lys Val  
 305 310 315 320  
 Glu His Tyr Phe Leu Gly Ile Ser Lys Arg Asp Ile Arg Arg Leu Tyr

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Phe Leu Leu Asn			
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Ser Val Leu Arg Arg Met Met Arg Val Ser Asn Arg Ser Leu Leu Ala	
5 10 15	

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Phe Ile Phe Phe Ser Leu Ser Ser Cys Leu Tyr Phe Ile Tyr	
20 25 30	

gtg gcc cca ggc atc gcc aac aca tat ctc ttt atg gta caa gct cga	444
Val Ala Pro Gly Ile Ala Asn Thr Tyr Leu Phe Met Val Gln Ala Arg	
35 40 45	

ggt ata atg ttg aga gaa aat gtg aaa aca ata ggt cat atg atc agg	492
Gly Ile Met Leu Arg Glu Asn Val Lys Thr Ile Gly His Met Ile Arg	
50 55 60 65	

ctg tac aca aat aaa aac agt acg ctc aac ggt aca gat tat ccc gaa	540
Leu Tyr Thr Asn Lys Asn Ser Thr Leu Asn Gly Thr Asp Tyr Pro Glu	
70 75 80	

ggc aat aat tca agt gat tat ctt gtt caa aca aca acg tat ctc ccg	588
Gly Asn Asn Ser Ser Asp Tyr Leu Val Gln Thr Thr Tyr Leu Pro	
85 90 95	

gaa aac ttc aca tac tca cca tac ctc ccc tgt cca gaa aag ctg cct	636
Glu Asn Phe Thr Tyr Ser Pro Tyr Leu Pro Cys Pro Glu Lys Leu Pro	
100 105 110	

tat atg cga gga ttc ctc aat gtc aat gta agc gaa gtc agt ttt gat	684
Tyr Met Arg Gly Phe Leu Asn Val Asn Val Ser Glu Val Ser Phe Asp	
115 120 125	

gaa att cat caa ctc ttc tcc aag gat tta gat att gag cca ggg ggt	732
Glu Ile His Gln Leu Phe Ser Lys Asp Leu Asp Ile Glu Pro Gly Gly	
130 135 140 145	

cat tgg agg cca aaa gac tgt aaa ccc aga tgg aag gtg gca gtt ctc	780
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His Trp Arg Pro Lys Asp Cys Lys Pro Arg Trp Lys Val Ala Val Leu		
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att cct ttc cgt aat cgc cat gaa cat ctt cca att ttt ttc tta cat		828
Ile Pro Phe Arg Asn Arg His Glu His Leu Pro Ile Phe Phe Leu His		
165	170	175
ctg att cca atg ctc cag aag cag cgg ctg gaa ttt gcg ttt tat gtc		876
Leu Ile Pro Met Leu Gln Lys Gln Arg Leu Glu Ala Phe Tyr Val		
180	185	190
att gaa cag act ggc aca caa cct ttt aac cgt gcg atg ctt ttc aat		924
Ile Glu Gln Thr Gly Thr Gln Pro Phe Asn Arg Ala Met Leu Phe Asn		
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gtg ggc ttc aaa gag gcc atg aaa gac agt gtc tgg gac tgt gta atc		972
Val Gly Phe Lys Glu Ala Met Lys Asp Ser Val Trp Asp Cys Val Ile		
210	215	220
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Phe His Asp Val Asp His Leu Pro Glu Asn Asp Arg Asn Tyr Tyr Gly		
230	235	240
tgt gga gaa atg cca cgt cat ttt gct gca aag ctg gat aaa tac atg		1068
Cys Gly Glu Met Pro Arg His Phe Ala Ala Lys Leu Asp Lys Tyr Met		
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Tyr Ile Leu Pro Tyr Lys Glu Phe Phe Gly Gly Val Ser Gly Leu Thr		
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Val Glu Gln Phe Arg Lys Ile Asn Gly Phe Pro Asn Ala Phe Trp Gly		
275	280	285
tgg gga gaa gat gat gac ctt tgg aac aga gtt cac tat gct gga		1212
Trp Gly Gly Glu Asp Asp Leu Trp Asn Arg Val His Tyr Ala Gly		
290	295	300
305		
tat aat gta acc aga cca gag gga gac tta gga aaa tac aag tca att		1260
Tyr Asn Val Thr Arg Pro Glu Gly Asp Leu Gly Lys Tyr Lys Ser Ile		
310	315	320
cct cat cac cat aga ggt gaa gtc cag ttt tta gga cgg tat aaa tta		1308
Pro His His Arg Gly Glu Val Gln Phe Leu Gly Arg Tyr Lys Leu		
325	330	335
cta agg tat tcc aag gag cgt cag tac atc gat gga ctg aac aat tta		1356
Leu Arg Tyr Ser Lys Glu Arg Gln Tyr Ile Asp Gly Leu Asn Asn Leu		
340	345	350
ata tat agg cca aaa ata ctg gtt gat agg ttg tat aca aac ata tct		1404
Ile Tyr Arg Pro Lys Ile Leu Val Asp Arg Leu Tyr Thr Asn Ile Ser		
355	360	365
gta aac ctc atg cca gag tta gct cca atc gaa gac tat taa		1446
Val Asn Leu Met Pro Glu Leu Ala Pro Ile Glu Asp Tyr *		
370	375	380
aagaagtggc tgcgtggca agtagacca caatgctgga tcataaactt ggagcgcgct	1506	
ctttagtggag gtcagtgatt ggctgtgtca cagtgccctt ttctctgaga agagccagca	1566	
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Tyr Val Ala Pro Gly Ile Ala Asn Thr Tyr Leu Phe Met Val Gln Ala
      35          40          45
Arg Gly Ile Met Leu Arg Glu Asn Val Lys Thr Ile Gly His Met Ile
      50          55          60
Arg Leu Tyr Thr Asn Lys Asn Ser Thr Leu Asn Gly Thr Asp Tyr Pro
      65          70          75          80
Glu Gly Asn Asn Ser Ser Asp Tyr Leu Val Gln Thr Thr Thr Tyr Leu
      85          90          95
Pro Glu Asn Phe Thr Tyr Ser Pro Tyr Leu Pro Cys Pro Glu Lys Leu
      100         105         110
Pro Tyr Met Arg Gly Phe Leu Asn Val Asn Val Ser Glu Val Ser Phe
      115         120         125

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Asp Glu Ile His Gln Leu Phe Ser Lys Asp Leu Asp Ile Glu Pro Gly  
 130 135 140  
 Gly His Trp Arg Pro Lys Asp Cys Lys Pro Arg Trp Lys Val Ala Val  
 145 150 155 160  
 Leu Ile Pro Phe Arg Asn Arg His Glu His Leu Pro Ile Phe Phe Leu  
 165 170 175  
 His Leu Ile Pro Met Leu Gln Lys Gln Arg Leu Glu Phe Ala Phe Tyr  
 180 185 190  
 Val Ile Glu Gln Thr Gly Thr Gln Pro Phe Asn Arg Ala Met Leu Phe  
 195 200 205  
 Asn Val Gly Phe Lys Glu Ala Met Lys Asp Ser Val Trp Asp Cys Val  
 210 215 220  
 Ile Phe His Asp Val Asp His Leu Pro Glu Asn Asp Arg Asn Tyr Tyr  
 225 230 235 240  
 Gly Cys Gly Glu Met Pro Arg His Phe Ala Ala Lys Leu Asp Lys Tyr  
 245 250 255  
 Met Tyr Ile Leu Pro Tyr Lys Glu Phe Phe Gly Gly Val Ser Gly Leu  
 260 265 270  
 Thr Val Glu Gln Phe Arg Lys Ile Asn Gly Phe Pro Asn Ala Phe Trp  
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 Gly Trp Gly Gly Glu Asp Asp Asp Leu Trp Asn Arg Val His Tyr Ala  
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 Gly Tyr Asn Val Thr Arg Pro Glu Gly Asp Leu Gly Lys Tyr Lys Ser  
 305 310 315 320  
 Ile Pro His His Arg Gly Glu Val Gln Phe Leu Gly Arg Tyr Lys  
 325 330 335  
 Leu Leu Arg Tyr Ser Lys Glu Arg Gln Tyr Ile Asp Gly Leu Asn Asn  
 340 345 350  
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 Ser Val Asn Leu Met Pro Glu Leu Ala Pro Ile Glu Asp Tyr  
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 gcc gcc gtg gaa gaa acg cta atg gac tcc act aca gcg act gct gag 96  
 Ala Ala Val Glu Glu Thr Leu Met Asp Ser Thr Thr Ala Thr Ala Glu  
 20 25 30  
 ctg ggc tgg atg gtg cat cct cca tca ggg tgg gaa gag gtg agt ggc 144  
 Leu Gly Trp Met Val His Pro Pro Ser Gly Trp Glu Glu Val Ser Gly  
 35 40 45  
 tac gat gag aac atg aac acg atc cgc acg tac cag gtg tgc aac gtg 192  
 Tyr Asp Glu Asn Met Asn Thr Ile Arg Thr Tyr Gln Val Cys Asn Val  
 50 55 60  
 ttt gag tca agc cag aac aac tgg cta cgg acc aag ttt atc cgg cgc 240  
 Phe Glu Ser Ser Gln Asn Asn Trp Leu Arg Thr Lys Phe Ile Arg Arg

65	70	75	80	
cgt ggc gcc cac cgc atc cac gtg gag atg aag ttt tcg gtg cgt gac				288
Arg Gly Ala His Arg Ile His Val Glu Met Lys Phe Ser Val Arg Asp				
85	90	95		
tgc agc agc atc ccc agc gtg cct ggc tcc tgc aag gag acc ttc aac				336
Cys Ser Ser Ile Pro Ser Val Pro Gly Ser Cys Lys Glu Thr Phe Asn				
100	105	110		
ctc tat tac tat gag gct gac ttt gac tcg gcc acc aag acc ttc ccc				384
Leu Tyr Tyr Glu Ala Asp Phe Asp Ser Ala Thr Lys Thr Phe Pro				
115	120	125		
aac tgg atg gag aat cca tgg gtg aag gtg gat acc att gca gcc gac				432
Asn Trp Met Glu Asn Pro Trp Val Lys Val Asp Thr Ile Ala Ala Asp				
130	135	140		
gag agc ttc tcc cag gtg gac ctg ggt ggc cgc gtc atg aaa atc aac				480
Glu Ser Phe Ser Gln Val Asp Leu Gly Gly Arg Val Met Lys Ile Asn				
145	150	155	160	
acc gag gtg cgg agc ttc gga cct gtg tcc cgc agc ggc ttc tac ctg				528
Thr Glu Val Arg Ser Phe Gly Pro Val Ser Arg Ser Gly Phe Tyr Leu				
165	170	175		
gcc ttc cag gac tat ggc ggc tgc atg tcc ctc atc gcc gtg cgt gtc				576
Ala Phe Gln Asp Tyr Gly Gly Cys Met Ser Leu Ile Ala Val Arg Val				
180	185	190		
ttc tac cgc aag tgc ccc cgc atc atc cag aat ggc gcc atc ttc cag				624
Phe Tyr Arg Lys Cys Pro Arg Ile Ile Gln Asn Gly Ala Ile Phe Gln				
195	200	205		
gaa acc ctg tcg ggg gct gag agc aca tcg ctg gtg gct gcc cgg ggc				672
Glu Thr Leu Ser Gly Ala Glu Ser Thr Ser Leu Val Ala Ala Arg Gly				
210	215	220		
agc tgc atc gcc aat gcg gaa gag gtg gat gta ccc atc aag ctc tac				720
Ser Cys Ile Ala Asn Ala Glu Glu Val Asp Val Pro Ile Lys Leu Tyr				
225	230	235	240	
tgt aac ggg gac ggc gag tgg ctg gtg ccc atc ggg cgc tgc atg tgc				768
Cys Asn Gly Asp Gly Glu Trp Leu Val Pro Ile Gly Arg Cys Met Cys				
245	250	255		
aaa gca ggc ttc gag gcc gtt gag aat ggc acc gtc tgc cga ggt tgt				816
Lys Ala Gly Phe Glu Ala Val Glu Asn Gly Thr Val Cys Arg Gly Cys				
260	265	270		
cca tct ggg act ttc aag gcc aac caa ggg gat gag gcc tgt acc cac				864
Pro Ser Gly Thr Phe Lys Ala Asn Gln Gly Asp Glu Ala Cys Thr His				
275	280	285		
tgt ccc atc aac agc cgg acc act tct gaa ggg gcc acc aac tgt gtc				912
Cys Pro Ile Asn Ser Arg Thr Thr Ser Glu Gly Ala Thr Asn Cys Val				
290	295	300		
tgc cgc aat ggc tac tac aga gca gac ctg gac ccc ctg gac atg ccc				960
Cys Arg Asn Gly Tyr Tyr Arg Ala Asp Leu Asp Pro Leu Asp Met Pro				
305	310	315	320	

tgc aca acc atc ccc tcc gcg ccc cag gct gtg att tcc agt gtc aat		1008
Cys Thr Thr Ile Pro Ser Ala Pro Gln Ala Val Ile Ser Ser Val Asn		
325	330	335
gag acc tcc ctc atg ctg gag tgg acc cct ccc cgc gac tcc gga ggc		1056
Glu Thr Ser Leu Met Leu Glu Trp Thr Pro Pro Arg Asp Ser Gly Gly		
340	345	350
cga gag gac ctc gtc tac aac atc atc tgc aag agc tgt ggc tcg ggc		1104
Arg Glu Asp Leu Val Tyr Asn Ile Ile Cys Lys Ser Cys Gly Ser Gly		
355	360	365
cgg ggt gcc tgc acc cgc tgc ggg gac aat gta cag tac gca cca cgc		1152
Arg Gly Ala Cys Thr Arg Cys Gly Asp Asn Val Gln Tyr Ala Pro Arg		
370	375	380
cag cta ggc ctg acc gag cca cgc att tac atc agt gac ctg ctg gcc		1200
Gln Leu Gly Leu Thr Glu Pro Arg Ile Tyr Ile Ser Asp Leu Leu Ala		
385	390	395
cac acc cag tac acc ttc gag atc cag gct gtg aac ggc gtt act gac		1248
His Thr Gln Tyr Thr Phe Glu Ile Gln Ala Val Asn Gly Val Thr Asp		
405	410	415
cag agc ccc ttc tcg cct cag ttc gcc tct gtg aac atc acc acc aac		1296
Gln Ser Pro Phe Ser Pro Gln Phe Ala Ser Val Asn Ile Thr Thr Asn		
420	425	430
cag gca gct cca tcg gca gtg tcc atc atg cat cag gtg agc cgc acc		1344
Gln Ala Ala Pro Ser Ala Val Ser Ile Met His Gln Val Ser Arg Thr		
435	440	445
gtg gac agc att acc ctg tcg tgg tcc cag cca gac cag ccc aat ggc		1392
Val Asp Ser Ile Thr Leu Ser Trp Ser Gln Pro Asp Gln Pro Asn Gly		
450	455	460
gtg atc ctg gac tat gag ctg cag tac tat gag aag gag ctc agt gag		1440
Val Ile Leu Asp Tyr Glu Leu Gln Tyr Tyr Glu Lys Glu Leu Ser Glu		
465	470	475
480		
tac aac gcc aca gcc ata aaa agc ccc acc aac acg gtc acc gtg cag		1488
Tyr Asn Ala Thr Ala Ile Lys Ser Pro Thr Asn Thr Val Thr Val Gln		
485	490	495
ggc ctc aaa gcc ggc gcc atc tat gtc ttc cag gtg cggt gca cgc acc		1536
Gly Leu Lys Ala Gly Ala Ile Tyr Val Phe Gln Val Arg Ala Arg Thr		
500	505	510
gtg gca ggc tac ggg cgc tac agc ggc aag atg tac ttc cag acc atg		1584
Val Ala Gly Tyr Gly Arg Tyr Ser Gly Lys Met Tyr Phe Gln Thr Met		
515	520	525
aca gaa gcc gag tac cag aca agc atc cag gag aag ttg cca ctc atc		1632
Thr Glu Ala Glu Tyr Gln Thr Ser Ile Gln Glu Lys Leu Pro Leu Ile		
530	535	540
atc ggc tcc tcg gcc gct ggc ctg gtc ttc ctc att gct gtg gtt gtc		1680
Ile Gly Ser Ser Ala Ala Gly Leu Val Phe Leu Ile Ala Val Val Val		
545	550	555
560		
atc gcc atc gtg tgt aac aga cgg ggg ttt gag cgt gct gac tcg gag		1728
Ile Ala Ile Val Cys Asn Arg Arg Gly Phe Glu Arg Ala Asp Ser Glu		

565	570	575	
tac acg gac aag ctg caa cac tac acc agt ggc cac atg acc cca ggc Tyr Thr Asp Lys Leu Gln His Tyr Thr Ser Gly His Met Thr Pro Gly 580	585	590	1776
atg aag atc tac atc gat cct ttc acc tac gag gac ccc aac gag gca Met Lys Ile Tyr Ile Asp Pro Phe Thr Tyr Glu Asp Pro Asn Glu Ala 595	600	605	1824
gtg cgg gag ttt gcc aag gaa att gac atc tcc tgt gtc aaa att gag Val Arg Glu Phe Ala Lys Glu Ile Asp Ile Ser Cys Val Lys Ile Glu 610	615	620	1872
cag gtg atc gga gca ggg gag ttt ggc gag gtc tgc agt ggc cac ctg Gln Val Ile Gly Ala Gly Glu Phe Gly Glu Val Cys Ser Gly His Leu 625	630	635	1920
aag ctg cca ggc aag aga gag atc ttt gtg gcc atc aag acg ctc aag Lys Leu Pro Gly Lys Arg Glu Ile Phe Val Ala Ile Lys Thr Leu Lys 645	650	655	1968
tcg ggc tac acg gag aag cag cgc cgg gac ttc ctg agc gaa gcc tcc Ser Gly Tyr Thr Glu Lys Gln Arg Arg Asp Phe Leu Ser Glu Ala Ser 660	665	670	2016
atc atg ggc cag ttc gac cat ccc aac gtc atc cac ctg gag ggt gtc Ile Met Gly Gln Phe Asp His Pro Asn Val Ile His Leu Glu Gly Val 675	680	685	2064
gtg acc aag agc aca cct gtg atg atc atc acc gag ttc atg gag aat Val Thr Lys Ser Thr Pro Val Met Ile Ile Thr Glu Phe Met Glu Asn 690	695	700	2112
ggc tcc ctg gac tcc ttt ctc cgg caa aac gat ggg cag ttc aca gtc Gly Ser Leu Asp Ser Phe Leu Arg Gln Asn Asp Gly Gln Phe Thr Val 705	710	715	2160
atc cag ctg gtg ggc atg ctt cgg ggc atc gca gct ggc atg aag tac Ile Gln Leu Val Gly Met Leu Arg Gly Ile Ala Ala Gly Met Lys Tyr 725	730	735	2208
ctg gca gac atg aac tat gtt cac cgt gac ctg gct gcc cgc aac atc Leu Ala Asp Met Asn Tyr Val His Arg Asp Leu Ala Ala Arg Asn Ile 740	745	750	2256
ctc gtc aac agc aac ctg gtc tgc aag gtg tcg gac ttt ggg ctc tca Leu Val Asn Ser Asn Leu Val Cys Lys Val Ser Asp Phe Gly Leu Ser 755	760	765	2304
cgc ttt cta gag gac gat acc tca gac ccc acc tac acc agt gcc ctg Arg Phe Leu Glu Asp Asp Thr Ser Asp Pro Thr Tyr Thr Ser Ala Leu 770	775	780	2352
ggc gga aag atc ccc atc cgc tgg aca gcc ccg gaa gcc atc cag tac Gly Gly Lys Ile Pro Ile Arg Trp Thr Ala Pro Glu Ala Ile Gln Tyr 785	790	795	2400
cgg aag ttc acc tcg gcc agt gat gtg tgg agc tac ggc att gtc atg Arg Lys Phe Thr Ser Ala Ser Asp Val Trp Ser Tyr Gly Ile Val Met 805	810	815	2448

tgg gag gtg atg tcc tat ggg gag cgg ccc tac tgg gac atg acc aac Trp Glu Val Met Ser Tyr Gly Glu Arg Pro Tyr Trp Asp Met Thr Asn 820 825 830	2496
cag gat gta atc aat gcc att gag cag gac tat cgg ctg cca ccg ccc Gln Asp Val Ile Asn Ala Ile Glu Gln Asp Tyr Arg Leu Pro Pro Pro 835 840 845	2544
atg gac tgc ccg agc gcc ctg cac caa ctc atg ctg gac tgt tgg cag Met Asp Cys Pro Ser Ala Leu His Gln Leu Met Leu Asp Cys Trp Gln 850 855 860	2592
aag gac cgc aac cac cgg ccc aag ttc ggc caa att gtc aac acg cta Lys Asp Arg Asn His Arg Pro Lys Phe Gly Gln Ile Val Asn Thr Leu 865 870 875 880	2640
gac aag atg atc cgc aat ccc aac agc ctc aaa gcc atg gcg ccc ctc Asp Lys Met Ile Arg Asn Pro Asn Ser Leu Lys Ala Met Ala Pro Leu 885 890 895	2688
tcc tct ggc atc aac ctg ccg ctg gac cgc acg atc ccc gac tac Ser Ser Gly Ile Asn Leu Pro Leu Leu Asp Arg Thr Ile Pro Asp Tyr 900 905 910	2736
acc agc ttt aac acg gtg gac gag tgg ctg gag gcc atc aag atg ggg Thr Ser Phe Asn Thr Val Asp Glu Trp Leu Glu Ala Ile Lys Met Gly 915 920 925	2784
cag tac aag gag agc ttc gcc aat gcc ggc ttc acc tcc ttt gac gtc Gln Tyr Lys Glu Ser Phe Ala Asn Ala Gly Phe Thr Ser Phe Asp Val 930 935 940	2832
gtg tct cag atg atg gag gac att ctc cgg gtt ggg gtc act ttg Val Ser Gln Met Met Glu Asp Ile Leu Arg Val Gly Val Thr Leu 945 950 955 960	2880
gct ggc cac cag aaa aaa atc ctg aac agt atc cag gtg atg cgg gcg Ala Gly His Gln Lys Lys Ile Leu Asn Ser Ile Gln Val Met Arg Ala 965 970 975	2928
cag atg aac cag att cag tct gtg gag ggc cag cca ctc gcc agg agg Gln Met Asn Gln Ile Gln Ser Val Glu Gly Gln Pro Leu Ala Arg Arg 980 985 990	2976
cca cgg gcc acg gga aga acc aag cgg tgc cag cca cga gac gtc acc Pro Arg Ala Thr Gly Arg Thr Lys Arg Cys Gln Pro Arg Asp Val Thr 995 1000 1005	3024
aag aaa aca tgc aac tca aac gac gga aaa aaa aag gga atg gga aaa Lys Lys Thr Cys Asn Ser Asn Asp Gly Lys Lys Lys Gly Met Gly Lys 1010 1015 1020	3072
aag aaa aca gat cct ggg agg ggg cgg gaa ata caa gga ata ttt ttt Lys Lys Thr Asp Pro Gly Arg Gly Arg Glu Ile Gln Gly Ile Phe Phe 1025 1030 1035 1040	3120
aaa gag gat tct cat aag gaa agc aat gac tgt tct tgc ggg gga taa Lys Glu Asp Ser His Lys Glu Ser Asn Asp Cys Ser Cys Gly Gly * 1045 1050 1055	3168
aaaagggctt gggagattca tgcgatgtgt ccaatcgag acaaaagcag tttctctcca 3228 actccctctg ggaagggtgac ctggccagag ccaagaaaaca ctttcagaaa aacaaatgtg 3288	

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 35 40 45  
 Tyr Asp Glu Asn Met Asn Thr Ile Arg Thr Tyr Gln Val Cys Asn Val  
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 Phe Glu Ser Ser Gln Asn Asn Trp Leu Arg Thr Lys Phe Ile Arg Arg  
 65 70 75 80  
 Arg Gly Ala His Arg Ile His Val Glu Met Lys Phe Ser Val Arg Asp  
 85 90 95  
 Cys Ser Ser Ile Pro Ser Val Pro Gly Ser Cys Lys Glu Thr Phe Asn  
 100 105 110  
 Leu Tyr Tyr Tyr Glu Ala Asp Phe Asp Ser Ala Thr Lys Thr Phe Pro  
 115 120 125  
 Asn Trp Met Glu Asn Pro Trp Val Lys Val Asp Thr Ile Ala Ala Asp  
 130 135 140  
 Glu Ser Phe Ser Gln Val Asp Leu Gly Gly Arg Val Met Lys Ile Asn  
 145 150 155 160  
 Thr Glu Val Arg Ser Phe Gly Pro Val Ser Arg Ser Gly Phe Tyr Leu  
 165 170 175  
 Ala Phe Gln Asp Tyr Gly Gly Cys Met Ser Leu Ile Ala Val Arg Val  
 180 185 190  
 Phe Tyr Arg Lys Cys Pro Arg Ile Ile Gln Asn Gly Ala Ile Phe Gln  
 195 200 205  
 Glu Thr Leu Ser Gly Ala Glu Ser Thr Ser Leu Val Ala Ala Arg Gly  
 210 215 220  
 Ser Cys Ile Ala Asn Ala Glu Glu Val Asp Val Pro Ile Lys Leu Tyr  
 225 230 235 240  
 Cys Asn Gly Asp Gly Glu Trp Leu Val Pro Ile Gly Arg Cys Met Cys  
 245 250 255  
 Lys Ala Gly Phe Glu Ala Val Glu Asn Gly Thr Val Cys Arg Gly Cys  
 260 265 270  
 Pro Ser Gly Thr Phe Lys Ala Asn Gln Gly Asp Glu Ala Cys Thr His  
 275 280 285  
 Cys Pro Ile Asn Ser Arg Thr Thr Ser Glu Gly Ala Thr Asn Cys Val  
 290 295 300  
 Cys Arg Asn Gly Tyr Tyr Arg Ala Asp Leu Asp Pro Leu Asp Met Pro  
 305 310 315 320  
 Cys Thr Thr Ile Pro Ser Ala Pro Gln Ala Val Ile Ser Ser Val Asn  
 325 330 335  
 Glu Thr Ser Leu Met Leu Glu Trp Thr Pro Pro Arg Asp Ser Gly Gly  
 340 345 350

Arg Glu Asp Leu Val Tyr Asn Ile Ile Cys Lys Ser Cys Gly Ser Gly  
 355 360 365  
 Arg Gly Ala Cys Thr Arg Cys Gly Asp Asn Val Gln Tyr Ala Pro Arg  
 370 375 380  
 Gln Leu Gly Leu Thr Glu Pro Arg Ile Tyr Ile Ser Asp Leu Leu Ala  
 385 390 395 400  
 His Thr Gln Tyr Thr Phe Glu Ile Gln Ala Val Asn Gly Val Thr Asp  
 405 410 415  
 Gln Ser Pro Phe Ser Pro Gln Phe Ala Ser Val Asn Ile Thr Thr Asn  
 420 425 430  
 Gln Ala Ala Pro Ser Ala Val Ser Ile Met His Gln Val Ser Arg Thr  
 435 440 445  
 Val Asp Ser Ile Thr Leu Ser Trp Ser Gln Pro Asp Gln Pro Asn Gly  
 450 455 460  
 Val Ile Leu Asp Tyr Glu Leu Gln Tyr Tyr Glu Lys Glu Leu Ser Glu  
 465 470 475 480  
 Tyr Asn Ala Thr Ala Ile Lys Ser Pro Thr Asn Thr Val Thr Val Gln  
 485 490 495  
 Gly Leu Lys Ala Gly Ala Ile Tyr Val Phe Gln Val Arg Ala Arg Thr  
 500 505 510  
 Val Ala Gly Tyr Gly Arg Tyr Ser Gly Lys Met Tyr Phe Gln Thr Met  
 515 520 525  
 Thr Glu Ala Glu Tyr Gln Thr Ser Ile Gln Glu Lys Leu Pro Leu Ile  
 530 535 540  
 Ile Gly Ser Ser Ala Ala Gly Leu Val Phe Leu Ile Ala Val Val Val  
 545 550 555 560  
 Ile Ala Ile Val Cys Asn Arg Arg Gly Phe Glu Arg Ala Asp Ser Glu  
 565 570 575  
 Tyr Thr Asp Lys Leu Gln His Tyr Thr Ser Gly His Met Thr Pro Gly  
 580 585 590  
 Met Lys Ile Tyr Ile Asp Pro Phe Thr Tyr Glu Asp Pro Asn Glu Ala  
 595 600 605  
 Val Arg Glu Phe Ala Lys Glu Ile Asp Ile Ser Cys Val Lys Ile Glu  
 610 615 620  
 Gln Val Ile Gly Ala Gly Glu Phe Gly Glu Val Cys Ser Gly His Leu  
 625 630 635 640  
 Lys Leu Pro Gly Lys Arg Glu Ile Phe Val Ala Ile Lys Thr Leu Lys  
 645 650 655  
 Ser Gly Tyr Thr Glu Lys Gln Arg Arg Asp Phe Leu Ser Glu Ala Ser  
 660 665 670  
 Ile Met Gly Gln Phe Asp His Pro Asn Val Ile His Leu Glu Gly Val  
 675 680 685  
 Val Thr Lys Ser Thr Pro Val Met Ile Ile Thr Glu Phe Met Glu Asn  
 690 695 700  
 Gly Ser Leu Asp Ser Phe Leu Arg Gln Asn Asp Gly Gln Phe Thr Val  
 705 710 715 720  
 Ile Gln Leu Val Gly Met Leu Arg Gly Ile Ala Ala Gly Met Lys Tyr  
 725 730 735  
 Leu Ala Asp Met Asn Tyr Val His Arg Asp Leu Ala Ala Arg Asn Ile  
 740 745 750  
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 Arg Phe Leu Glu Asp Asp Thr Ser Asp Pro Thr Tyr Thr Ser Ala Leu  
 770 775 780  
 Gly Gly Lys Ile Pro Ile Arg Trp Thr Ala Pro Glu Ala Ile Gln Tyr  
 785 790 795 800  
 Arg Lys Phe Thr Ser Ala Ser Asp Val Trp Ser Tyr Gly Ile Val Met  
 805 810 815  
 Trp Glu Val Met Ser Tyr Gly Glu Arg Pro Tyr Trp Asp Met Thr Asn  
 820 825 830  
 Gln Asp Val Ile Asn Ala Ile Glu Gln Asp Tyr Arg Leu Pro Pro Pro  
 835 840 845

Met	Asp	Cys	Pro	Ser	Ala	Leu	His	Gln	Leu	Met	Leu	Asp	Cys	Trp	Gln
850					855					860					
Lys	Asp	Arg	Asn	His	Arg	Pro	Lys	Phe	Gly	Gln	Ile	Val	Asn	Thr	Leu
865					870				875					880	
Asp	Lys	Met	Ile	Arg	Asn	Pro	Asn	Ser	Leu	Lys	Ala	Met	Ala	Pro	Leu
					885				890				895		
Ser	Ser	Gly	Ile	Asn	Leu	Pro	Leu	Leu	Asp	Arg	Thr	Ile	Pro	Asp	Tyr
					900			905				910			
Thr	Ser	Phe	Asn	Thr	Val	Asp	Glu	Trp	Leu	Glu	Ala	Ile	Lys	Met	Gly
					915			920				925			
Gln	Tyr	Lys	Glu	Ser	Phe	Ala	Asn	Ala	Gly	Phe	Thr	Ser	Phe	Asp	Val
					930		935			940					
Val	Ser	Gln	Met	Met	Met	Glu	Asp	Ile	Leu	Arg	Val	Gly	Val	Thr	Leu
					945		950		955				960		
Ala	Gly	His	Gln	Lys	Lys	Ile	Leu	Asn	Ser	Ile	Gln	Val	Met	Arg	Ala
					965			970				975			
Gln	Met	Asn	Gln	Ile	Gln	Ser	Val	Glu	Gly	Gln	Pro	Leu	Ala	Arg	Arg
					980			985				990			
Pro	Arg	Ala	Thr	Gly	Arg	Thr	Lys	Arg	Cys	Gln	Pro	Arg	Asp	Val	Thr
					995		1000					1005			
Lys	Lys	Thr	Cys	Asn	Ser	Asn	Asp	Gly	Lys	Lys	Lys	Gly	Met	Gly	Lys
					1010		1015				1020				
Lys	Lys	Thr	Asp	Pro	Gly	Arg	Gly	Arg	Glu	Ile	Gln	Gly	Ile	Phe	Phe
					1025		1030		1035					1040	
Lys	Glu	Asp	Ser	His	Lys	Glu	Ser	Asn	Asp	Cys	Ser	Cys	Gly	Gly	
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 <212> DNA  
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ccacgtca	tggagagtgt	gtgttgggaa	ggaagggcag	agcggagagc	cgagccgctg	180									
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		Met	Arg	Ser	Glu	Lys	Ser	Leu	Thr	Leu	Ala				
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gcg	ccg	ggg	gag	gtc	cgt	ggg	ccg	gag	ggg	gag	caa	cag	gat	gcg	gga
Ala	Pro	Gly	Glu	Val	Arg	Gly	Pro	Glu	Gly	Glu	Gln	Gln	Asp	Ala	Gly
															940
															25

gac	ttc	ccg	gag	gcc	ggc	ggg	ggc	tgc	tgt	agt	agc	gag	cgg		988
Asp	Phe	Pro	Glu	Ala	Gly	Gly	Gly	Gly	Gly	Cys	Ser	Ser	Glu	Arg	

30

35

40

ctg	gtg	atc	aat	atc	tcc	ggg	ctg	cgc	ttt	gag	aca	caa	ttg	cgc	acc	1036
Leu	Val	Ile	Asn	Ile	Ser	Gly	Leu	Arg	Phe	Glu	Thr	Gln	Leu	Arg	Thr	
45							50					55				
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Leu	Ser	Leu	Phe	Pro	Asp	Thr	Leu	Leu	Gly	Asp	Pro	Gly	Arg	Arg	Val	
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cgc	ttc	ttc	gac	ccc	ctg	agg	aac	gag	tac	ttc	ttc	gac	cgc	aac	cg	1132
Arg	Phe	Phe	Asp	Pro	Leu	Arg	Asn	Glu	Tyr	Phe	Phe	Asp	Arg	Asn	Arg	
75							80				85		90			
ccc	agc	ttc	gac	gcc	atc	ctc	tac	tac	tac	cag	tct	ggg	ggc	cgc	ctg	1180
Pro	Ser	Phe	Asp	Ala	Ile	Leu	Tyr	Tyr	Tyr	Gln	Ser	Gly	Gly	Arg	Leu	
95							100				105					
cg	agg	ccg	gtc	aac	gt	ccc	ctg	gac	att	ttc	ctg	gag	gag	atc	cg	1228
Arg	Arg	Pro	Val	Asn	Val	Pro	Leu	Asp	Ile	Phe	Leu	Glu	Glu	Ile	Arg	
110							115				120					
ttc	tac	cag	ctg	ggg	gac	gag	gcc	ctg	g	ttc	cg	gag	gac	gag	1276	
Phe	Tyr	Gln	Leu	Gly	Asp	Glu	Ala	Leu	Ala	Ala	Phe	Arg	Glu	Asp	Glu	
125							130				135					
ggc	tgc	ctg	ccc	gaa	gg	gtc	g	g	g	g	aa	ccg	ctg	ccc	tcc	1324
Gly	Cys	Leu	Pro	Glu	Gly	Gly	Glu	Asp	Glu	Lys	Pro	Leu	Pro	Ser	Gln	
140							145				150					
ccc	ttc	cag	cg	ca	gt	tg	ct	tc	tt	g	ta	cc	g	ag	t	1372
Pro	Phe	Gln	Arg	Gln	Val	Trp	Leu	Leu	Phe	Glu	Tyr	Pro	Glu	Ser	Ser	
155							160				165		170			
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Gly	Pro	Ala	Arg	Gly	Ile	Ala	Ile	Val	Ser	Val	Leu	Val	Ile	Leu	Ile	
175							180				185					
tcc	ata	gtc	atc	ttt	tgc	ctg	gag	acc	tta	ccc	cag	ttc	cgt	gt	at	1468
Ser	Ile	Val	Ile	Phe	Cys	Leu	Glu	Thr	Leu	Pro	Gln	Phe	Arg	Val	Asp	
190							195				200					
ggt	cga	ggt	gga	aac	aat	ggt	gt	gt	agt	cga	gtc	tcc	cca	gtt	tcc	1516
Gly	Arg	Gly	Gly	Asn	Asn	Gly	Gly	Val	Ser	Arg	Val	Ser	Pro	Val	Ser	
205							210				215					
agg	ggg	agt	cag	gag	gaa	gag	gag	gat	gaa	gac	gat	tcc	tac	aca	ttt	1564
Arg	Gly	Ser	Gln	Glu	Glu	Glu	Glu	Asp	Glu	Asp	Asp	Ser	Tyr	Thr	Phe	
220							225				230					
cat	cat	ggc	atc	acc	cct	ggg	gaa	atg	ggg	acc	ggg	ggc	tcc	tcc	tca	1612
His	His	Gly	Ile	Thr	Pro	Gly	Glu	Met	Gly	Thr	Gly	Gly	Ser	Ser	Ser	
235							240				245		250			
ctc	agt	act	ctt	ggg	ggc	tcc	ttt	aca	gac	ccc	ttc	ttt	ctg	gt	1660	
Leu	Ser	Thr	Leu	Gly	Gly	Ser	Phe	Phe	Thr	Asp	Pro	Phe	Phe	Leu	Val	
255							260				265					
gag	acg	ctg	tgc	att	gtc	tgg	ttc	act	ttt	gag	ctc	ctg	gt	cg	ttc	1708
Glu	Thr	Leu	Cys	Ile	Val	Trp	Phe	Thr	Phe	Glu	Leu	Leu	Val	Arg	Phe	
270							275				280					

tcc gcc tgc cct agc aag ccg gcc ttc ttc cgg aac atc atc aac atc		1756	
Ser Ala Cys Pro Ser Lys Pro Ala Phe Phe Arg Asn Ile Met Asn Ile			
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att gac ttg gtg gct atc ttc ccc tac ttc atc acc ctg ggc act gag		1804	
Ile Asp Leu Val Ala Ile Phe Pro Tyr Phe Ile Thr Leu Gly Thr Glu			
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ctg gtg cag cag cag gag cag caa cca gcc agt gga gga ggc ggc cag		1852	
Leu Val Gln Gln Gln Glu Gln Gln Pro Ala Ser Gly Gly Gly Gln			
315	320	325	330
aat ggg cag cag gcc atg tcc ctg gcc atc ctc cga gtc atc cgc ctg		1900	
Asn Gly Gln Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu			
335	340	345	
gtc cgg gtg ttc cgc atc ttc aag ctc tcc cgc cac tcc aag ggg ctg		1948	
Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu			
350	355	360	
cag atc ctg ggc aag acc ttg cag gcc tcc atg agg gag ctg ggg ctg		1996	
Gln Ile Leu Gly Lys Thr Leu Gln Ala Ser Met Arg Glu Leu Gly Leu			
365	370	375	
ctc atc ttc ttc ctc atc ggg gtc atc ctc ttc tcc agt gcc gtc		2044	
Leu Ile Phe Phe Ile Gly Val Ile Leu Phe Ser Ser Ala Val			
380	385	390	
tac ttc gca gag gct gac gat gac gat tcg ctt ttt ccc agc atc ccg		2092	
Tyr Phe Ala Glu Ala Asp Asp Asp Ser Leu Phe Pro Ser Ile Pro			
395	400	405	410
gat gcc ttc tgg tgg gca gtg gtt aca atg acc acg gta ggt tac ggg		2140	
Asp Ala Phe Trp Trp Ala Val Val Thr Met Thr Thr Val Gly Tyr Gly			
415	420	425	
gac atg tac ccc atg act gtg ggg gga aag atc gtg ggc tcg ctg tgt		2188	
Asp Met Tyr Pro Met Thr Val Gly Gly Lys Ile Val Gly Ser Leu Cys			
430	435	440	
gcc atc gct ggg gtc ctc acc att gcc ctg cct gtg ccc gtc atc gtc		2236	
Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile Val			
445	450	455	
tcc aac ttc aac tac ttc tac cac cgg gag acg gag cag gag gag caa		2284	
Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gln Glu Gln			
460	465	470	
ggc cag tat acc cac gtc act tgt ggg cag cct gcg ccg gac ctg agg		2332	
Gly Gln Tyr Thr His Val Thr Cys Gly Gln Pro Ala Pro Asp Leu Arg			
475	480	485	490
gca act gac aac gga ctt ggc aag cct gac ttc ccc gag gct aac ccg		2380	
Ala Thr Asp Asn Gly Leu Gly Lys Pro Asp Phe Pro Glu Ala Asn Arg			
495	500	505	
gaa cgg aga ccc agc tac ctt cct aca cca cat cgg gcc tat gca gag		2428	
Glu Arg Arg Pro Ser Tyr Leu Pro Thr Pro His Arg Ala Tyr Ala Glu			
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aaa aga atg ctc acg gag gtc tga cccatgcagg cagggcctgc aggagggag		2482	
Lys Arg Met Leu Thr Glu Val *			

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 20 25 30  
 Gly Gly Gly Cys Cys Ser Ser Glu Arg Leu Val Ile Asn Ile Ser  
 35 40 45  
 Gly Leu Arg Phe Glu Thr Gln Leu Arg Thr Leu Ser Leu Phe Pro Asp  
 50 55 60  
 Thr Leu Leu Gly Asp Pro Gly Arg Arg Val Arg Phe Phe Asp Pro Leu  
 65 70 75 80  
 Arg Asn Glu Tyr Phe Phe Asp Arg Asn Arg Pro Ser Phe Asp Ala Ile  
 85 90 95  
 Leu Tyr Tyr Tyr Gln Ser Gly Gly Arg Leu Arg Arg Pro Val Asn Val  
 100 105 110  
 Pro Leu Asp Ile Phe Leu Glu Glu Ile Arg Phe Tyr Gln Leu Gly Asp  
 115 120 125  
 Glu Ala Leu Ala Ala Phe Arg Glu Asp Glu Gly Cys Leu Pro Glu Gly  
 130 135 140  
 Gly Glu Asp Glu Lys Pro Leu Pro Ser Gln Pro Phe Gln Arg Gln Val  
 145 150 155 160  
 Trp Leu Leu Phe Glu Tyr Pro Glu Ser Ser Gly Pro Ala Arg Gly Ile  
 165 170 175  
 Ala Ile Val Ser Val Leu Val Ile Leu Ile Ser Ile Val Ile Phe Cys

180	185	190	
Leu Glu Thr Leu Pro Gln Phe Arg Val Asp Gly Arg Gly	Gly Asn Asn		
195	200	205	
Gly Gly Val Ser Arg Val Ser Pro Val Ser Arg Gly	Ser Gln Glu Glu		
210	215	220	
Glu Glu Asp Glu Asp Asp Ser Tyr Thr Phe His His	Gly Ile Thr Pro		
225	230	235	240
Gly Glu Met Gly Thr Gly Ser Ser Ser Leu Ser Thr Leu	Gly Gly		
245	250	255	
Ser Phe Phe Thr Asp Pro Phe Phe Leu Val Glu Thr Leu	Cys Ile Val		
260	265	270	
Trp Phe Thr Phe Glu Leu Leu Val Arg Phe Ser Ala	Cys Pro Ser Lys		
275	280	285	
Pro Ala Phe Phe Arg Asn Ile Met Asn Ile Ile Asp	Leu Val Ala Ile		
290	295	300	
Phe Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Val	Gln Gln Gln Glu		
305	310	315	320
Gln Gln Pro Ala Ser Gly Gly Gly Gln Asn Gly Gln Gln	Ala Met		
325	330	335	
Ser Leu Ala Ile Leu Arg Val Ile Arg Leu Val Arg Val	Phe Arg Ile		
340	345	350	
Phe Lys Leu Ser Arg His Ser Lys Gly Leu Gln Ile	Leu Gly Lys Thr		
355	360	365	
Leu Gln Ala Ser Met Arg Glu Leu Gly Leu Leu Ile	Phe Phe Leu Phe		
370	375	380	
Ile Gly Val Ile Leu Phe Ser Ser Ala Val Tyr	Phe Ala Glu Ala Asp		
385	390	395	400
Asp Asp Asp Ser Leu Phe Pro Ser Ile Pro Asp Ala Phe	Trp Trp Ala		
405	410	415	
Val Val Thr Met Thr Thr Val Gly Tyr Gly Asp Met	Tyr Pro Met Thr		
420	425	430	
Val Gly Gly Lys Ile Val Gly Ser Leu Cys Ala Ile	Ala Gly Val Leu		
435	440	445	
Thr Ile Ala Leu Pro Val Pro Val Ile Val Ser Asn	Phe Asn Tyr Phe		
450	455	460	
Tyr His Arg Glu Thr Glu Gln Glu Gln Gly	Gln Tyr Thr His Val		
465	470	475	480
Thr Cys Gly Gln Pro Ala Pro Asp Leu Arg Ala	Thr Asp Asn Gly Leu		
485	490	495	
Gly Lys Pro Asp Phe Pro Glu Ala Asn Arg Glu Arg	Arg Pro Ser Tyr		
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Leu Pro Thr Pro His Arg Ala Tyr Ala Glu Lys Arg	Met Leu Thr Glu		
515	520	525	
Val			

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Thr Ala Pro Gln Glu Pro Pro Ala Arg Pro Leu Gln Ala Gly Ser Gly		
5	10	15
gct ggc ccg gcg cct ggg cgcc gcc atg cgcc agc acc acg ctc ctg gcc		152
Ala Gly Pro Ala Pro Gly Arg Ala Met Arg Ser Thr Thr Leu Leu Ala		
20	25	30
ctg ctg gcg ctg gtc ttg ctt tac ttg gtg tct ggt gcc ctg gtg ttc		200
Leu Leu Ala Leu Val Leu Leu Tyr Leu Val Ser Gly Ala Leu Val Phe		
35	40	45
50		
cgg gcc ctg gag cag ccc cac gag cag cag gcc cag agg gag ctg ggg		248
Arg Ala Leu Glu Gln Pro His Glu Gln Gln Ala Gln Arg Glu Leu Gly		
55	60	65
gag gtc cga gag aag ttc ctg agg gcc cat ccg tgt gtg agc gac cag		296
Glu Val Arg Glu Lys Phe Leu Arg Ala His Pro Cys Val Ser Asp Gln		
70	75	80
gag ctg ggc ctc ctc atc aag gag gtg gct gat gcc ctg gga ggg ggt		344
Glu Leu Gly Leu Leu Ile Lys Glu Val Ala Asp Ala Leu Gly Gly Gly		
85	90	95
gcg gac cca gaa acc aac tcg acc agc aac agc agc cac tca gcc tgg		392
Ala Asp Pro Glu Thr Asn Ser Thr Ser Asn Ser Ser His Ser Ala Trp		
100	105	110
gac ctg ggc agc gcc ttc ttt ttc tca ggg acc atc atc acc acc atc		440
Asp Leu Gly Ser Ala Phe Phe Ser Gly Thr Ile Ile Thr Thr Ile		
115	120	125
130		
ggc tat ggc aat gtg gcc ctg cgc aca gat gcc ggg cgc ctc ttc tgc		488
Gly Tyr Gly Asn Val Ala Leu Arg Thr Asp Ala Gly Arg Leu Phe Cys		
135	140	145
atc ttt tat gcg ctg gtg ggg att ccg ctg ttt ggg atc cta ctg gca		536
Ile Phe Tyr Ala Leu Val Gly Ile Pro Leu Phe Gly Ile Leu Leu Ala		
150	155	160
ggg gtc ggg gac cgg ctg ggc tcc tcc ctg cgc cat ggc atc ggt cac		584
Gly Val Gly Asp Arg Leu Gly Ser Ser Leu Arg His Gly Ile Gly His		
165	170	175
att gaa gcc atc ttc ttg aag tgg cac gtg cca ccg gag cta gta aga		632
Ile Glu Ala Ile Phe Leu Lys Trp His Val Pro Pro Glu Leu Val Arg		
180	185	190
gtg ctg tcg gcg atg ctt ttc ctg atc ggc tgc ctg ctc ttt gtc		680
Val Leu Ser Ala Met Leu Phe Leu Leu Ile Gly Cys Leu Leu Phe Val		
195	200	205
210		
ctc acg ccc acg ttc gtg ttc tgc tat atg gag gac tgg agc aag ctg		728
Leu Thr Pro Thr Phe Val Phe Cys Tyr Met Glu Asp Trp Ser Lys Leu		
215	220	225
gag gcc atc tac ttt gtc ata gtg acg ctt acc acc gtg ggc ttt ggc		776
Glu Ala Ile Tyr Phe Val Ile Val Thr Leu Thr Thr Val Gly Phe Gly		
230	235	240

gac tat gtg gcc ggc gcg gac ccc agg cag gac tcc ccg gcc tat cag	824																																																																																																																
Asp Tyr Val Ala Gly Ala Asp Pro Arg Gln Asp Ser Pro Ala Tyr Gln																																																																																																																	
245	250	255		ccg ctg gtg tgg ttc tgg atc ctg ctc ggc ctg gct tac ttc gcc tca	872	Pro Leu Val Trp Phe Trp Ile Leu Leu Gly Leu Ala Tyr Phe Ala Ser		260	265	270		gtg ctc acc acc atc ggg aac tgg ctg cga gta gtg tcc cgc cgc act	920	Val Leu Thr Thr Ile Gly Asn Trp Leu Arg Val Val Ser Arg Arg Thr		275	280	285	290	cg gca gag atg ggc ggc ctc acg gct cag gct gcc agc tgg act ggc	968	Arg Ala Glu Met Gly Gly Leu Thr Ala Gln Ala Ala Ser Trp Thr Gly		295	300	305		aca gtg aca gcg cgc gtg acc cag cga gcc ggg ccc gcc gcc ccg ccg	1016	Thr Val Thr Ala Arg Val Thr Gln Arg Ala Gly Pro Ala Ala Pro Pro		310	315	320		ccg gag aag gag cag cca ctg ctg cct cca ccg ccc tgc cca gcg cag	1064	Pro Glu Lys Glu Gln Pro Leu Leu Pro Pro Pro Cys Pro Ala Gln		325	330	335		ccg ctg ggc agg ccc cga tcc cct tcg ccc ccc gag aag gct cag ccg	1112	Pro Leu Gly Arg Pro Arg Ser Pro Ser Pro Pro Glu Lys Ala Gln Pro		340	345	350		cct tcc ccg ccc acg gcc tcg gcc ctg gat tat ccc agc gag aac ctg	1160	Pro Ser Pro Pro Thr Ala Ser Ala Leu Asp Tyr Pro Ser Glu Asn Leu		355	360	365	370	gcc ttc atc gac gag tcc tcg gat acg cag agc gag cgc ggc tgc ccg	1208	Ala Phe Ile Asp Glu Ser Ser Asp Thr Gln Ser Glu Arg Gly Cys Pro		375	380	385		ctg ccc cgc gcg ccg aga ggt cgc cgc cca aat ccc ccc agg aag	1256	Leu Pro Arg Ala Pro Arg Gly Arg Arg Pro Asn Pro Pro Arg Lys		390	395	400		ccc gtg cgg ccc cgc ggc ccc ggg cgt ccc cga gac aaa ggc gtg ccg	1304	Pro Val Arg Pro Arg Gly Pro Gly Arg Pro Arg Asp Lys Gly Val Pro		405	410	415		gtg tag ggatccctgg ccgggcctct caagggcttc gtttctgctc tccccggcat	1360	Val *		gcctggcttg tttgacccaaa gagccctttt tccacgagac tgaagtctgg ggaggaggct	1420	acagttgcct ctccgcctcc tccctggccc cggcccttcc ctcacttcca tccatctcta	1480	gaccccccga aggctttctg tgtcgctgcc ccgggggggt gtatccctca cagcacctca	1540	cgactgtgcc tcaaagcctg catcaataaa tggaaacgggt ctgcaccgct gcgggcgtga	1600	cgctcccgga cgcgagtgaa tggaaattt ctgcaccgtt ggcaccgtgg gggcacctct	1660	ggcctccctgt gaccccccagg ccgagggtcc ccccgccac ccaggtcggt caagtctcggt	1720	ccctctcagg cccgcgtctc tgcctggagg agactgtgtt gggccgggg tggggatcag	1780	ccgggatggg ctgcgcgtct ccagcctctg cacacacatt ggcgggtgg gtgcaggag	1840	ggagaggcag gggagagaga atggcatctc gcgtggagg ctgtcggtt aactctccca	1900	gcgcgagaga ccctgccccg ccccttcct ggagcggttga ctcccttcgt gtctcgaggc	1960	ctgtggcgctc tgggtccgtt gggcagaac catggaggaa aagccttcga aagtgtcgct	2020	caagtcttcc gaccgccaag gctcgacga ggagagcgtt catagcgaca ctcgggacct	2080	gtggaccacg accacgctgt cccaggcaca gctgaacatcg ccgtgtccg aggtctcgca	2140
255																																																																																																																	
ccg ctg gtg tgg ttc tgg atc ctg ctc ggc ctg gct tac ttc gcc tca	872																																																																																																																
Pro Leu Val Trp Phe Trp Ile Leu Leu Gly Leu Ala Tyr Phe Ala Ser																																																																																																																	
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390	395	400		ccc gtg cgg ccc cgc ggc ccc ggg cgt ccc cga gac aaa ggc gtg ccg	1304	Pro Val Arg Pro Arg Gly Pro Gly Arg Pro Arg Asp Lys Gly Val Pro		405	410	415		gtg tag ggatccctgg ccgggcctct caagggcttc gtttctgctc tccccggcat	1360	Val *		gcctggcttg tttgacccaaa gagccctttt tccacgagac tgaagtctgg ggaggaggct	1420	acagttgcct ctccgcctcc tccctggccc cggcccttcc ctcacttcca tccatctcta	1480	gaccccccga aggctttctg tgtcgctgcc ccgggggggt gtatccctca cagcacctca	1540	cgactgtgcc tcaaagcctg catcaataaa tggaaacgggt ctgcaccgct gcgggcgtga	1600	cgctcccgga cgcgagtgaa tggaaattt ctgcaccgtt ggcaccgtgg gggcacctct	1660	ggcctccctgt gaccccccagg ccgagggtcc ccccgccac ccaggtcggt caagtctcggt	1720	ccctctcagg cccgcgtctc tgcctggagg agactgtgtt gggccgggg tggggatcag	1780	ccgggatggg ctgcgcgtct ccagcctctg cacacacatt ggcgggtgg gtgcaggag	1840	ggagaggcag gggagagaga atggcatctc gcgtggagg ctgtcggtt aactctccca	1900	gcgcgagaga ccctgccccg ccccttcct ggagcggttga ctcccttcgt gtctcgaggc	1960	ctgtggcgctc tgggtccgtt gggcagaac catggaggaa aagccttcga aagtgtcgct	2020	caagtcttcc gaccgccaag gctcgacga ggagagcgtt catagcgaca ctcgggacct	2080	gtggaccacg accacgctgt cccaggcaca gctgaacatcg ccgtgtccg aggtctcgca	2140																																																																								
400																																																																																																																	
ccc gtg cgg ccc cgc ggc ccc ggg cgt ccc cga gac aaa ggc gtg ccg	1304																																																																																																																
Pro Val Arg Pro Arg Gly Pro Gly Arg Pro Arg Asp Lys Gly Val Pro																																																																																																																	
405	410	415		gtg tag ggatccctgg ccgggcctct caagggcttc gtttctgctc tccccggcat	1360	Val *		gcctggcttg tttgacccaaa gagccctttt tccacgagac tgaagtctgg ggaggaggct	1420	acagttgcct ctccgcctcc tccctggccc cggcccttcc ctcacttcca tccatctcta	1480	gaccccccga aggctttctg tgtcgctgcc ccgggggggt gtatccctca cagcacctca	1540	cgactgtgcc tcaaagcctg catcaataaa tggaaacgggt ctgcaccgct gcgggcgtga	1600	cgctcccgga cgcgagtgaa tggaaattt ctgcaccgtt ggcaccgtgg gggcacctct	1660	ggcctccctgt gaccccccagg ccgagggtcc ccccgccac ccaggtcggt caagtctcggt	1720	ccctctcagg cccgcgtctc tgcctggagg agactgtgtt gggccgggg tggggatcag	1780	ccgggatggg ctgcgcgtct ccagcctctg cacacacatt ggcgggtgg gtgcaggag	1840	ggagaggcag gggagagaga atggcatctc gcgtggagg ctgtcggtt aactctccca	1900	gcgcgagaga ccctgccccg ccccttcct ggagcggttga ctcccttcgt gtctcgaggc	1960	ctgtggcgctc tgggtccgtt gggcagaac catggaggaa aagccttcga aagtgtcgct	2020	caagtcttcc gaccgccaag gctcgacga ggagagcgtt catagcgaca ctcgggacct	2080	gtggaccacg accacgctgt cccaggcaca gctgaacatcg ccgtgtccg aggtctcgca	2140																																																																																
415																																																																																																																	
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Val *																																																																																																																	
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 35 40 45  
 Val Phe Arg Ala Leu Glu Gln Pro His Glu Gln Gln Ala Gln Arg Glu  
 50 55 60  
 Leu Gly Glu Val Arg Glu Lys Phe Leu Arg Ala His Pro Cys Val Ser  
 65 70 75 80  
 Asp Gln Glu Leu Gly Leu Leu Ile Lys Glu Val Ala Asp Ala Leu Gly  
 85 90 95  
 Gly Gly Ala Asp Pro Glu Thr Asn Ser Thr Ser Asn Ser Ser His Ser  
 100 105 110  
 Ala Trp Asp Leu Gly Ser Ala Phe Phe Ser Gly Thr Ile Ile Thr  
 115 120 125  
 Thr Ile Gly Tyr Gly Asn Val Ala Leu Arg Thr Asp Ala Gly Arg Leu  
 130 135 140  
 Phe Cys Ile Phe Tyr Ala Leu Val Gly Ile Pro Leu Phe Gly Ile Leu  
 145 150 155 160  
 Leu Ala Gly Val Gly Asp Arg Leu Gly Ser Ser Leu Arg His Gly Ile  
 165 170 175  
 Gly His Ile Glu Ala Ile Phe Leu Lys Trp His Val Pro Pro Glu Leu  
 180 185 190  
 Val Arg Val Leu Ser Ala Met Leu Phe Leu Leu Ile Gly Cys Leu Leu  
 195 200 205  
 Phe Val Leu Thr Pro Thr Phe Val Phe Cys Tyr Met Glu Asp Trp Ser  
 210 215 220  
 Lys Leu Glu Ala Ile Tyr Phe Val Ile Val Thr Leu Thr Thr Val Gly  
 225 230 235 240  
 Phe Gly Asp Tyr Val Ala Gly Ala Asp Pro Arg Gln Asp Ser Pro Ala  
 245 250 255  
 Tyr Gln Pro Leu Val Trp Phe Trp Ile Leu Leu Gly Leu Ala Tyr Phe  
 260 265 270  
 Ala Ser Val Leu Thr Thr Ile Gly Asn Trp Leu Arg Val Val Ser Arg  
 275 280 285  
 Arg Thr Arg Ala Glu Met Gly Gly Leu Thr Ala Gln Ala Ala Ser Trp  
 290 295 300  
 Thr Gly Thr Val Thr Ala Arg Val Thr Gln Arg Ala Gly Pro Ala Ala  
 305 310 315 320  
 Pro Pro Pro Glu Lys Glu Gln Pro Leu Leu Pro Pro Pro Pro Cys Pro  
 325 330 335  
 Ala Gln Pro Leu Gly Arg Pro Arg Ser Pro Ser Pro Pro Glu Lys Ala  
 340 345 350

Gln Pro Pro Ser Pro Pro Thr Ala Ser Ala Leu Asp Tyr Pro Ser Glu  
 355 360 365  
 Asn Leu Ala Phe Ile Asp Glu Ser Ser Asp Thr Gln Ser Glu Arg Gly  
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 Cys Pro Leu Pro Arg Ala Pro Arg Gly Arg Arg Pro Asn Pro Pro  
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 gatttggg cggcgagggt gcgagggtc ggcgcgcatg ctccgggtcc cgacggcgcg 180  
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 cccggcgccgg agtccccca cccggaggg atggggccgg cagccgcggg cgcctaag 358  
 atg ccg gcc atg cgg ggc ctc ctg gcg ccg cag aac acc ttc ctg gac 406  
 Met Pro Ala Met Arg Gly Leu Leu Ala Pro Gln Asn Thr Phe Leu Asp  
 1 5 10 15

acc atc gct acg cgc ttc gac ggc acg cac agt aac ttc gtg ctg ggc 454  
 Thr Ile Ala Thr Arg Phe Asp Gly Thr His Ser Asn Phe Val Leu Gly  
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aac gcc cag gtg gcg ggg ctc ttc ccc gtg gtc tac tgc tct gat ggc 502  
 Asn Ala Gln Val Ala Gly Leu Phe Pro Val Val Tyr Cys Ser Asp Gly  
 35 40 45

ttc tgt gac ctc acg ggc ttc tcc cgg gct gag gtc atg cag cgg ggc 550  
 Phe Cys Asp Leu Thr Gly Phe Ser Arg Ala Glu Val Met Gln Arg Gly  
 50 55 60

tgt gcc tgc tcc ttc ctt tat ggg cca gac acc agt gag ctc gtc cgc 598  
 Cys Ala Cys Ser Phe Leu Tyr Gly Pro Asp Thr Ser Glu Leu Val Arg  
 65 70 75 80

caa cag atc cgc aag gcc ctg gac gag cac aag gag ttc aag gct gag 646  
 Gln Gln Ile Arg Lys Ala Leu Asp Glu His Lys Glu Phe Lys Ala Glu  
 85 90 95

ctg atc ctg tac cgg aag agc ggg ctc ccg ttc tgg tgt ctc ctg gat 694  
 Leu Ile Leu Tyr Arg Lys Ser Gly Leu Pro Phe Trp Cys Leu Leu Asp  
 100 105 110

gtg ata ccc ata aag aat gag aaa ggg gag gtg gct ctc ttc cta gtc 742  
 Val Ile Pro Ile Lys Asn Glu Lys Gly Glu Val Ala Leu Phe Leu Val  
 115 120 125

tct cac aag gac atc agc gaa acc aag aac cga ggg ggc ccy gac aga 790  
 Ser His Lys Asp Ile Ser Glu Thr Lys Asn Arg Gly Gly Xaa Asp Arg

130

135

140

tgg aag gag aca ggt ggt ggc cgg cgc cga tat ggc cgg gca cga tcc	838
Trp Lys Glu Thr Gly Gly Arg Arg Arg Tyr Gly Arg Ala Arg Ser	
145 150 155 160	
aaa ggc ttc aat gcc aac cgg cgg cgg agc cgg gcc gtg ctc tac cac	886
Lys Gly Phe Asn Ala Asn Arg Arg Arg Ser Arg Ala Val Leu Tyr His	
165 170 175	
ctg tcc ggg cac ctg cag aag cag ccc aag ggc aag cac aag ctc aat	934
Leu Ser Gly His Leu Gln Lys Gln Pro Lys Gly Lys His Lys Leu Asn	
180 185 190	
aag ggg gtg ttt ggg gag aaa cca aac ttg cct gag tac aaa gta gcc	982
Lys Gly Val Phe Gly Glu Lys Pro Asn Leu Pro Glu Tyr Lys Val Ala	
195 200 205	
gcc atc cgg aag tcg ccc ttc atc ctg ttg cac tgt ggg gca ctg aga	1030
Ala Ile Arg Lys Ser Pro Phe Ile Leu Leu His Cys Gly Ala Leu Arg	
210 215 220	
gcc acc tgg gat ggc ttc atc ctg ctc gcc aca ctc tat gtg gct gtc	1078
Ala Thr Trp Asp Gly Phe Ile Leu Leu Ala Thr Leu Tyr Val Ala Val	
225 230 235 240	
act gtg ccc tac agc gtg tgt gtg agc aca gca cgg gag ccc agt gcc	1126
Thr Val Pro Tyr Ser Val Cys Val Ser Thr Ala Arg Glu Pro Ser Ala	
245 250 255	
gcc cgc ggc ccg ccc agc gtc tgt gac ctg gcc gtg gag gtc ctc ttc	1174
Ala Arg Gly Pro Pro Ser Val Cys Asp Leu Ala Val Glu Val Leu Phe	
260 265 270	
atc ctt gac att gtg ctg aat ttc cgt acc aca ttc gtg tcc aag tcg	1222
Ile Leu Asp Ile Val Leu Asn Phe Arg Thr Thr Phe Val Ser Lys Ser	
275 280 285	
ggc cag gtg gtg ttt gcc cca aag tcc att tgc ctc cac tac gtc acc	1270
Gly Gln Val Val Phe Ala Pro Lys Ser Ile Cys Leu His Tyr Val Thr	
290 295 300	
acc tgg ttc ctg ctg gat gtc atc gca gcg ctg ccc ttt gac ctg ctg	1318
Thr Trp Phe Leu Leu Asp Val Ile Ala Ala Leu Pro Phe Asp Leu Leu	
305 310 315 320	
cat gcc ttc aag gtc aac gtg tac ttc ggg gcc cac ctg ctg aag acg	1366
His Ala Phe Lys Val Asn Val Tyr Phe Gly Ala His Leu Leu Lys Thr	
325 330 335	
gtg cgc ctg ctg cgc ctg cgc ctg ctt ccg cgg ctg gac cgg tac	1414
Val Arg Leu Leu Arg Leu Leu Arg Leu Leu Pro Arg Leu Asp Arg Tyr	
340 345 350	
tcg cag tac agc gcc gtg gtg ctg aca ctg ctc atg gcc gtg ttt gcc	1462
Ser Gln Tyr Ser Ala Val Val Leu Thr Leu Leu Met Ala Val Phe Ala	
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ctg ctt gcg cac tgg gtt gcc tgc gtc tgg ttt tac att ggt cag cgg	1510
Leu Leu Ala His Trp Val Ala Cys Val Trp Phe Tyr Ile Gly Gln Arg	
370 375 380	

gag atc gag agc agc gaa tcc gag ctg cct gag att ggc tgg ctg cag Glu Ile Glu Ser Ser Glu Ser Glu Leu Pro Glu Ile Gly Trp Leu Gln 385 390 395 400	1558
gag ctg gcc cgc cga ctg gag acc ccc tac tac ttg gtg ggc cgg aga Glu Leu Ala Arg Arg Leu Glu Thr Pro Tyr Tyr Leu Val Gly Arg Arg 405 410 415	1606
cca gcc gga ggg aac agc tct ggc cag agt gac aac tgc agc agc agc Pro Ala Gly Gly Asn Ser Ser Gly Gln Ser Asp Asn Cys Ser Ser Ser 420 425 430	1654
agc gag gcc aac ggg acg ggg ctg gag ctg cta ggc ggc ccg tcg ctg Ser Glu Ala Asn Gly Thr Gly Leu Glu Leu Leu Gly Gly Pro Ser Leu 435 440 445	1702
cgc agc gcc tac atc acc tcc ctc tac ttc gca ctc agc agc ctc acc Arg Ser Ala Tyr Ile Thr Ser Leu Tyr Phe Ala Leu Ser Ser Leu Thr 450 455 460	1750
agc gtg ggc ttc ggc aac gtg tcc gcc aac acg gac act gag aag atc Ser Val Gly Phe Gly Asn Val Ser Ala Asn Thr Asp Thr Glu Lys Ile 465 470 475 480	1798
ttc tcc atc tgc acc atg ctc atc ggc gcc ctg atg cac gcg gtg gtg Phe Ser Ile Cys Thr Met Leu Ile Gly Ala Leu Met His Ala Val Val 485 490 495	1846
ttc ggg aac gtg acg gcc atc atc cag cgc atg tac gcc cgc cgc ttt Phe Gly Asn Val Thr Ala Ile Ile Gln Arg Met Tyr Ala Arg Arg Phe 500 505 510	1894
ttg tac cac agc cgc acg cgc gac ctg cgc gac tac atc cgc atc cac Leu Tyr His Ser Arg Thr Arg Asp Leu Arg Asp Tyr Ile Arg Ile His 515 520 525	1942
cgt atc ccc aag ccc ctc aag cag cgc atg ctg gag tac ttc cag gcc Arg Ile Pro Lys Pro Leu Lys Gln Arg Met Leu Glu Tyr Phe Gln Ala 530 535 540	1990
acc tgg gcg gtg aac aat ggc atc gac acc acc gag ctg ctg cag agc Thr Trp Ala Val Asn Asn Gly Ile Asp Thr Thr Glu Leu Leu Gln Ser 545 550 555 560	2038
ctc cct gac gag ctg cgc gca gac atc gcc atg cac ctg cac aag gag Leu Pro Asp Glu Leu Arg Ala Asp Ile Ala Met His Leu His Lys Glu 565 570 575	2086
gtc ctg cag ctg ccg ctg ttt gag gca gcc agc cgc ggc tgc ctg cgg Val Leu Gln Leu Pro Leu Phe Glu Ala Ala Ser Arg Gly Cys Leu Arg 580 585 590	2134
gca ctg tct ctg gcc ctg cgg ccc gcc ttc tgc acg ccg ggc gag tac Ala Leu Ser Leu Ala Leu Arg Pro Ala Phe Cys Thr Pro Gly Glu Tyr 595 600 605	2182
ctc atc cac caa ggc gat gcc ctg cag gcc ctc tac ttt gtc tgc tct Leu Ile His Gln Gly Asp Ala Leu Gln Ala Leu Tyr Phe Val Cys Ser 610 615 620	2230
ggc tcc atg gag gtg ctc aag ggt ggc acc gtg ctc gcc atc cta ggg Gly Ser Met Glu Val Leu Lys Gly Gly Thr Val Leu Ala Ile Leu Gly	2278

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aag ggt gac ctg atc ggc tgt gag ctg ccc cgg agg gag cag gtg gta Lys Gly Asp Leu Ile Gly Cys Glu Leu Pro Arg Arg Glu Gln Val Val 645		650		2326
			655	
aag gcc aac gcc gat gtg aag ggg ctg acg tac tgc gtc ctg cag tgt Lys Ala Asn Ala Asp Val Lys Gly Leu Thr Tyr Cys Val Leu Gln Cys 660		665	670	2374
ctg cag ctg gct ggc ctg cac gac agc ctt gcg ctc tac ccc gag ttt Leu Gln Leu Ala Gly Leu His Asp Ser Leu Ala Leu Tyr Pro Glu Phe 675		680	685	2422
gcc ccg cgc ttc agc cgt ggc ctc cga ggg gag ctc agc tac aac ctg Ala Pro Arg Phe Ser Arg Gly Leu Arg Gly Glu Leu Ser Tyr Asn Leu 690		695	700	2470
ggt gct ggg gga ggc tct gca gag gtg gac acc agc tcc ctg agc ggc Gly Ala Gly Gly Ser Ala Glu Val Asp Thr Ser Ser Leu Ser Gly 705		710	715	720
gac aat acc ctt atg tcc acg ctg gag gag aag gag aca gat ggg gag Asp Asn Thr Leu Met Ser Thr Leu Glu Glu Lys Glu Thr Asp Gly Glu 725		730	735	2566
cag ggc ccc aca gtc tcc cca gcc cca gct gat gag ccc tcc agc ccc Gln Gly Pro Thr Val Ser Pro Ala Pro Ala Asp Glu Pro Ser Ser Pro 740		745	750	2614
cta ctg tcc cct ggt tgc acc tcc tca tcc tcg gct gcc aag ctg cta Leu Leu Ser Pro Gly Cys Thr Ser Ser Ser Ala Ala Lys Leu Leu 755		760	765	2662
tcc cca cgt cga aca gca ccc cgg cct cgt cta ggt ggc aga ggg aga Ser Pro Arg Arg Thr Ala Pro Arg Pro Arg Leu Gly Gly Arg Gly Arg 770		775	780	2710
cca ggc agg gca ggg gct ttg aag gct gag gct ggc ccc tct gct ccc Pro Gly Arg Ala Gly Ala Leu Lys Ala Glu Ala Gly Pro Ser Ala Pro 785		790	795	800
cca cgg gcc cta gag ggg cta cgg ctg ccc ccc atg cca tgg aat gtg Pro Arg Ala Leu Glu Gly Leu Arg Leu Pro Pro Met Pro Trp Asn Val 805		810	815	2806
ccc cca gat ctg agc ccc agg gta gta gat ggc att gaa gac ggc tgt Pro Pro Asp Leu Ser Pro Arg Val Val Asp Gly Ile Glu Asp Gly Cys 820		825	830	2854
ggc tcg gac cag ccc aag ttc tct ttc cgc atg ggc cag tct ggc ccc Gly Ser Asp Gln Pro Lys Phe Ser Phe Arg Met Gly Gln Ser Gly Pro 835		840	845	2902
gaa tgt agc agc agc ccc tcc cct gga cca gag agt ggc ctg ctc act Glu Cys Ser Ser Ser Pro Ser Pro Gly Pro Glu Ser Gly Leu Leu Thr 850		855	860	2950
gtc ccc cat ggg ccc agc gag gca agg aac aca gac aca ctg gac aag Val Pro His Gly Pro Ser Glu Ala Arg Asn Thr Asp Thr Leu Asp Lys 865		870	875	2998
			880	

ctt cgg cag gcg gtg atg gag ctg tca gaa cag gtg ctg cag atg cgg	885	890	895	3046
Leu Arg Gln Ala Val Met Glu Leu Ser Glu Gln Val Leu Gln Met Arg				
gaa gga cta cag tca ctt cgc cag gtt gtg cag ctt gtc ctg gca ccc	900	905	910	3094
Glu Gly Leu Gln Ser Leu Arg Gln Val Val Gln Leu Val Leu Ala Pro				
cat agg gag ggt cca tgc cct cgg gcc tca gga gag ggg cca tgc cca	915	920	925	3142
His Arg Glu Gly Pro Cys Pro Arg Ala Ser Gly Glu Gly Pro Cys Pro				
gcc agc acc tcc ggg ctt ctg cag cct ctg tgt gtg gac act ggg gca	930	935	940	3190
Ala Ser Thr Ser Gly Leu Leu Gln Pro Leu Cys Val Asp Thr Gly Ala				
tcc tcc tac tgc ctg cag ccc cca gct ggc tct gtc ttg agt ggg act	945	950	955	3238
Ser Ser Tyr Cys Leu Gln Pro Pro Ala Gly Ser Val Leu Ser Gly Thr				
tgg ccc cac cct cgt ccg ggg cct ccc ctc atg gca ccc tgg ccc	965	970	975	3286
Trp Pro His Pro Arg Pro Gly Pro Pro Leu Met Ala Pro Trp Pro				
tgg ggt ccc cca gca tct cag agc tcc ccc tgg cct cga gcc aca gct	980	985	990	3334
Trp Gly Pro Pro Ala Ser Gln Ser Ser Pro Trp Pro Arg Ala Thr Ala				
ttc tgg acc tcc acc tca gac tca gag ccc cct gcc tca gga gac ctc	995	1000	1005	3382
Phe Trp Thr Ser Thr Ser Asp Ser Glu Pro Pro Ala Ser Gly Asp Leu				
tgc tct gag ccc agc acc cct gcc tca cct cct cct tct gag gaa ggg	1010	1015	1020	3430
Cys Ser Glu Pro Ser Thr Pro Ala Ser Pro Pro Pro Ser Glu Glu Gly				
gct agg act ggg ccc cca gag cct gtg agc cag gct gag gct acc agc	1025	1030	1035	3478
Ala Arg Thr Gly Pro Pro Glu Pro Val Ser Gln Ala Glu Ala Thr Ser				
act gga gag ccc ccg cca gtg tca ggg ggc ctg gcc ttg ccc tgg gac	1045	1050	1055	3526
Thr Gly Glu Pro Pro Val Ser Gly Gly Leu Ala Leu Pro Trp Asp				
ccc cac agc ctg gag atg gtg ctt att ggc tgc cac ggc tct ggc aca	1060	1065	1070	3574
Pro His Ser Leu Glu Met Val Leu Ile Gly Cys His Gly Ser Gly Thr				
gtc cag tgg acc cag gaa gaa ggc aca ggg gtc tga gtaccagccc	1075	1080		3620
Val Gln Trp Thr Gln Glu Glu Gly Thr Gly Val *				
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Asn Ala Gln Val Ala Gly Leu Phe Pro Val Val Tyr Cys Ser Asp Gly  
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Phe Cys Asp Leu Thr Gly Phe Ser Arg Ala Glu Val Met Gln Arg Gly  
50 55 60  
Cys Ala Cys Ser Phe Leu Tyr Gly Pro Asp Thr Ser Glu Leu Val Arg  
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Gln Gln Ile Arg Lys Ala Leu Asp Glu His Lys Glu Phe Lys Ala Glu  
85 90 95  
Leu Ile Leu Tyr Arg Lys Ser Gly Leu Pro Phe Trp Cys Leu Leu Asp  
100 105 110  
Val Ile Pro Ile Lys Asn Glu Lys Gly Glu Val Ala Leu Phe Leu Val  
115 120 125  
Ser His Lys Asp Ile Ser Glu Thr Lys Asn Arg Gly Gly Xaa Asp Arg  
130 135 140  
Trp Lys Glu Thr Gly Gly Arg Arg Arg Tyr Gly Arg Ala Arg Ser  
145 150 155 160  
Lys Gly Phe Asn Ala Asn Arg Arg Ser Arg Ala Val Leu Tyr His  
165 170 175  
Leu Ser Gly His Leu Gln Lys Gln Pro Lys Gly Lys His Lys Leu Asn  
180 185 190  
Lys Gly Val Phe Gly Glu Lys Pro Asn Leu Pro Glu Tyr Lys Val Ala  
195 200 205  
Ala Ile Arg Lys Ser Pro Phe Ile Leu Leu His Cys Gly Ala Leu Arg  
210 215 220  
Ala Thr Trp Asp Gly Phe Ile Leu Leu Ala Thr Leu Tyr Val Ala Val  
225 230 235 240  
Thr Val Pro Tyr Ser Val Cys Val Ser Thr Ala Arg Glu Pro Ser Ala  
245 250 255  
Ala Arg Gly Pro Pro Ser Val Cys Asp Leu Ala Val Glu Val Leu Phe  
260 265 270  
Ile Leu Asp Ile Val Leu Asn Phe Arg Thr Thr Phe Val Ser Lys Ser  
275 280 285  
Gly Gln Val Val Phe Ala Pro Lys Ser Ile Cys Leu His Tyr Val Thr  
290 295 300  
Thr Trp Phe Leu Leu Asp Val Ile Ala Ala Leu Pro Phe Asp Leu Leu  
305 310 315 320  
His Ala Phe Lys Val Asn Val Tyr Phe Gly Ala His Leu Leu Lys Thr  
325 330 335  
Val Arg Leu Leu Arg Leu Leu Arg Leu Leu Pro Arg Leu Asp Arg Tyr  
340 345 350  
Ser Gln Tyr Ser Ala Val Val Leu Thr Leu Leu Met Ala Val Phe Ala  
355 360 365  
Leu Leu Ala His Trp Val Ala Cys Val Trp Phe Tyr Ile Gly Gln Arg  
370 375 380  
Glu Ile Glu Ser Ser Glu Ser Glu Leu Pro Glu Ile Gly Trp Leu Gln  
385 390 395 400  
Glu Leu Ala Arg Arg Leu Glu Thr Pro Tyr Tyr Leu Val Gly Arg Arg  
405 410 415  
Pro Ala Gly Gly Asn Ser Ser Gly Gln Ser Asp Asn Cys Ser Ser Ser

420	425	430	
Ser Glu Ala Asn Gly Thr Gly Leu	Glu Leu Leu Gly Gly	Pro Ser Leu	
435	440	445	
Arg Ser Ala Tyr Ile Thr Ser Leu	Tyr Phe Ala Leu	Ser Ser Leu Thr	
450	455	460	
Ser Val Gly Phe Gly Asn Val Ser	Ala Asn Thr Asp	Thr Glu Lys Ile	
465	470	475	480
Phe Ser Ile Cys Thr Met Leu Ile	Gly Ala Leu Met His	Ala Val Val	
485	490	495	
Phe Gly Asn Val Thr Ala Ile Ile	Gln Arg Met Tyr	Ala Arg Arg Phe	
500	505	510	
Leu Tyr His Ser Arg Thr Arg Asp	Leu Arg Asp Tyr	Ile Arg Ile His	
515	520	525	
Arg Ile Pro Lys Pro Leu Lys	Gln Arg Met Leu	Glu Tyr Phe Gln Ala	
530	535	540	
Thr Trp Ala Val Asn Asn Gly	Ile Asp Thr	Thr Glu Leu Leu Gln Ser	
545	550	555	560
Leu Pro Asp Glu Leu Arg Ala Asp	Ile Ala Met His	Leu His Lys Glu	
565	570	575	
Val Leu Gln Leu Pro Leu Phe Glu	Ala Ala Ser Arg	Gly Cys Leu Arg	
580	585	590	
Ala Leu Ser Leu Ala Leu Arg Pro	Ala Phe Cys Thr	Pro Gly Glu Tyr	
595	600	605	
Leu Ile His Gln Gly Asp Ala	Leu Gln Ala Leu	Tyr Phe Val Cys Ser	
610	615	620	
Gly Ser Met Glu Val Leu Lys	Gly Gly Thr Val	Leu Ala Ile Leu Gly	
625	630	635	640
Lys Gly Asp Leu Ile Gly Cys	Glu Leu Pro Arg	Arg Glu Gln Val Val	
645	650	655	
Lys Ala Asn Ala Asp Val Lys	Gly Leu Thr	Tyr Cys Val Leu Gln Cys	
660	665	670	
Leu Gln Leu Ala Gly Leu His	Asp Ser Leu Ala	Leu Tyr Pro Glu Phe	
675	680	685	
Ala Pro Arg Phe Ser Arg Gly	Leu Arg Gly Glu	Leu Ser Tyr Asn Leu	
690	695	700	
Gly Ala Gly Gly Ser Ala Glu	Val Asp Thr	Ser Ser Leu Ser Gly	
705	710	715	720
Asp Asn Thr Leu Met Ser Thr	Leu Glu Glu Lys	Glu Thr Asp Gly Glu	
725	730	735	
Gln Gly Pro Thr Val Ser Pro	Ala Pro Ala Asp	Glu Pro Ser Ser Pro	
740	745	750	
Leu Leu Ser Pro Gly Cys	Thr Ser Ser	Ala Ala Lys Leu Leu	
755	760	765	
Ser Pro Arg Arg Thr Ala Pro	Arg Pro Arg Leu	Gly Gly Arg Gly Arg	
770	775	780	
Pro Gly Arg Ala Gly Ala	Leu Lys Ala Glu	Ala Gly Pro Ser Ala Pro	
785	790	795	800
Pro Arg Ala Leu Glu	Gly Leu Arg Leu	Pro Pro Met Pro Trp Asn Val	
805	810	815	
Pro Pro Asp Leu Ser Pro Arg	Val Val Asp	Gly Ile Glu Asp Gly Cys	
820	825	830	
Gly Ser Asp Gln Pro Lys	Phe Ser Phe Arg	Met Gly Gln Ser Gly Pro	
835	840	845	
Glu Cys Ser Ser Ser Pro	Ser Pro Gly Pro	Glu Ser Gly Leu Leu Thr	
850	855	860	
Val Pro His Gly Pro Ser	Glu Ala Arg Asn	Thr Asp Thr Leu Asp Lys	
865	870	875	880
Leu Arg Gln Ala Val Met	Glu Leu Ser	Glu Gln Val Leu Gln Met Arg	
885	890	895	
Glu Gly Leu Gln Ser Leu	Arg Gln Val	Val Gln Leu Val Leu Ala Pro	
900	905	910	
His Arg Glu Gly Pro Cys	Pro Arg Ala Ser	Gly Glu Gly Pro Cys Pro	

915	920	925
Ala Ser Thr Ser Gly Leu Leu Gln Pro Leu Cys Val Asp Thr Gly Ala		
930	935	940
Ser Ser Tyr Cys Leu Gln Pro Pro Ala Gly Ser Val Leu Ser Gly Thr		
945	950	955
Trp Pro His Pro Arg Pro Gly Pro Pro Pro Leu Met Ala Pro Trp Pro		
965	970	975
Trp Gly Pro Pro Ala Ser Gln Ser Ser Pro Trp Pro Arg Ala Thr Ala		
980	985	990
Phe Trp Thr Ser Thr Ser Asp Ser Glu Pro Pro Ala Ser Gly Asp Leu		
995	1000	1005
Cys Ser Glu Pro Ser Thr Pro Ala Ser Pro Pro Pro Ser Glu Glu Gly		
1010	1015	1020
Ala Arg Thr Gly Pro Pro Glu Pro Val Ser Gln Ala Glu Ala Thr Ser		
1025	1030	1035
Thr Gly Glu Pro Pro Val Ser Gly Gly Leu Ala Leu Pro Trp Asp		
1045	1050	1055
Pro His Ser Leu Glu Met Val Leu Ile Gly Cys His Gly Ser Gly Thr		
1060	1065	1070
Val Gln Trp Thr Gln Glu Glu Gly Thr Gly Val		
1075	1080	

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 <212> DNA  
 <213> Homo Sapiens

<220>  
 <221> CDS  
 <222> (268)...(1266)

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 tgcctccattc cccaaacactc ctccctcccg gcgaaaccgg gcaccagcag gcgttgcga 180  
 gaggagatac gagctggacg cctggccctt ccctccacc gggtcctagt ccaccgctcc 240  
 cggccgcggc tccccgcctc tcccgct atg tac cga ccg cga gcc cgg gcg gct 294  
 Met Tyr Arg Pro Arg Ala Arg Ala Ala  
 1 5

ccc gag ggc agg gtc cgg ggc tgc gcg gtg ccc ggc acc gtg ctc ctg 342  
 Pro Glu Gly Arg Val Arg Gly Cys Ala Val Pro Gly Thr Val Leu Leu  
 10 15 20 25

ctg ctc gcc tac ctg gct tac ctg gcg ctg ggc acc ggc gtg ttc tgg 390  
 Leu Leu Ala Tyr Leu Ala Tyr Leu Ala Leu Gly Thr Gly Val Phe Trp  
 30 35 40

acg ctg gag ggc cgc gcg cag gac tcc agc cgc agc ttc cag cgc 438  
 Thr Leu Glu Gly Arg Ala Ala Gln Asp Ser Ser Arg Ser Phe Gln Arg  
 45 50 55

gac aag tgg gag ctg ttg cag aac ttc acg tgt ctg gac cgc ccg gcg 486  
 Asp Lys Trp Glu Leu Leu Gln Asn Phe Thr Cys Leu Asp Arg Pro Ala  
 60 65 70

ctg gac tcg atc cgg gat gtc gtc caa gca tac aaa aac gga gcc 534  
 Leu Asp Ser Leu Ile Arg Asp Val Val Gln Ala Tyr Lys Asn Gly Ala  
 75 80 85

agc ctc ctc agc aac acc acc agc atg ggg cgc tgg gag ctc gtg ggc 582

Ser	Leu	Leu	Ser	Asn	Thr	Thr	Ser	Met	Gly	Arg	Trp	Glu	Leu	Val	Gly	
90					95				100				105			
tcc ttc ttc ttt tct gtg tcc acc atc acc acc att ggc tat ggc aac															630	
Ser	Phe	Phe	Ser	Val	Ser	Thr	Ile	Thr	Thr	Ile	Gly	Tyr	Gly	Asn		
	110					115				120						
ctg agc ccc aac acg atg gct gcc cgc ctc ttc tgc atc ttc ttt gcc															678	
Leu	Ser	Pro	Asn	Thr	Met	Ala	Ala	Arg	Leu	Phe	Cys	Ile	Phe	Phe	Ala	
	125					130				135						
ctt gtg ggg atc cca ctc aac ctc gtg gtg ctc aac cga ctg ggg cat															726	
Leu	Val	Gly	Ile	Pro	Leu	Asn	Leu	Val	Val	Leu	Asn	Arg	Leu	Gly	His	
	140				145				150							
ctc atg cag cag gga gta aac cac tgg gcc agc agg ctg ggg ggc acc															774	
Leu	Met	Gln	Gln	Gly	Val	Asn	His	Trp	Ala	Ser	Arg	Leu	Gly	Gly	Thr	
	155				160			165								
tgg cag gat cct gac aag gcg cgg tgg ctg gcg ggc tct ggc gcc ctc															822	
Trp	Gln	Asp	Pro	Asp	Lys	Ala	Arg	Trp	Leu	Ala	Gly	Ser	Gly	Ala	Leu	
	170				175			180		185						
ctc tcg ggc ctc ctg ctc ttc ctg ctg cca ccg ctg ctc ttc tcc															870	
Leu	Ser	Gly	Leu	Leu	Phe	Leu	Leu	Leu	Pro	Pro	Leu	Leu	Phe	Ser		
	190				195			200								
cac atg gag ggc tgg agc tac aca gag ggc ttc tac ttc gcc ttc atc															918	
His	Met	Glu	Gly	Trp	Ser	Tyr	Thr	Glu	Gly	Phe	Tyr	Phe	Ala	Phe	Ile	
	205				210			215								
acc ctc agc acc gtg ggc ttc ggc gac tac gtg att gga atg aac ccc															966	
Thr	Leu	Ser	Thr	Val	Gly	Phe	Gly	Asp	Tyr	Val	Ile	Gly	Met	Asn	Pro	
	220				225			230								
tcc cag agg tac cca ctg tgg tac aag aac atg gtg tcc ctg tgg atc															1014	
Ser	Gln	Arg	Tyr	Pro	Leu	Trp	Tyr	Lys	Asn	Met	Val	Ser	Leu	Trp	Ile	
	235				240			245								
ctc ttt ggg atg gca tgg ctg gcc ttg atc atc aaa ctc atc ctc tcc															1062	
Leu	Phe	Gly	Met	Ala	Trp	Leu	Ala	Leu	Ile	Ile	Lys	Leu	Ile	Leu	Ser	
	250				255			260		265						
cag ctg gag acg cca ggg agg gta tgt tcc tgc tgc cac cac agc tct															1110	
Gln	Leu	Glu	Thr	Pro	Gly	Arg	Val	Cys	Ser	Cys	Cys	His	His	Ser	Ser	
	270				275			280		285						
aag gaa gac ttc aag tcc caa agc tgg aga cag gga cct gac cgg gag															1158	
Lys	Glu	Asp	Phe	Lys	Ser	Gln	Ser	Trp	Arg	Gln	Gly	Pro	Asp	Arg	Glu	
	285				290			295								
cca gag tcc cac tcc cca cag caa gga tgc tat cca gag gga ccc atg															1206	
Pro	Glu	Ser	His	Ser	Pro	Gln	Gln	Gly	Cys	Tyr	Pro	Glu	Gly	Pro	Met	
	300				305			310								
gga atc ata cag cat ctg gaa cct tct gct cac gct gca ggc tgt ggc															1254	
Gly	Ile	Ile	Gln	His	Leu	Glu	Pro	Ser	Ala	His	Ala	Ala	Gly	Cys	Gly	
	315				320			325								
aag gac agc tag ttatactcca ttctttggtc gtcgtcctcg gtagcaagac															1306	
Lys	Asp	Ser	*													
	330															

ccctgattt aagcttgca catgtccacc caaactaaag actacattt ccatccaccc 1366  
 tagaggctgg gtgcagctat atgattaatt ctgccccata gggtatcacag agacatgtcc 1426  
 tgggtgacat gggatgtgac tttcgggtgt cggggcagca tgcccttctc ccccaactcc 1486  
 ttacatttagc gggctgcaat gcccggata tgatggctgg gagctctggc agccatacgg 1546  
 caccatgaag tagcggcaat gtttgagcgg cacaataaga taggaagagt ctggatctct 1606  
 gatgatcaca gagccatcct aacaaacgga atatcacccg acctccttta tgtgagagag 1666  
 aaataaacat cttatgtaaa atccccaaaa aaaaaaaaaa aaaaaaaaaa 1726  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1764

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 <211> 332  
 <212> PRT  
 <213> Homo Sapiens

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 Cys Ala Val Pro Gly Thr Val Leu Leu Leu Ala Tyr Leu Ala Tyr  
 20 25 30  
 Leu Ala Leu Gly Thr Gly Val Phe Trp Thr Leu Glu Gly Arg Ala Ala  
 35 40 45  
 Gln Asp Ser Ser Arg Ser Phe Gln Arg Asp Lys Trp Glu Leu Leu Gln  
 50 55 60  
 Asn Phe Thr Cys Leu Asp Arg Pro Ala Leu Asp Ser Leu Ile Arg Asp  
 65 70 75 80  
 Val Val Gln Ala Tyr Lys Asn Gly Ala Ser Leu Leu Ser Asn Thr Thr  
 85 90 95  
 Ser Met Gly Arg Trp Glu Leu Val Gly Ser Phe Phe Ser Val Ser  
 100 105 110  
 Thr Ile Thr Ile Gly Tyr Gly Asn Leu Ser Pro Asn Thr Met Ala  
 115 120 125  
 Ala Arg Leu Phe Cys Ile Phe Phe Ala Leu Val Gly Ile Pro Leu Asn  
 130 135 140  
 Leu Val Val Leu Asn Arg Leu Gly His Leu Met Gln Gln Gly Val Asn  
 145 150 155 160  
 His Trp Ala Ser Arg Leu Gly Gly Thr Trp Gln Asp Pro Asp Lys Ala  
 165 170 175  
 Arg Trp Leu Ala Gly Ser Gly Ala Leu Leu Ser Gly Leu Leu Phe  
 180 185 190  
 Leu Leu Leu Pro Pro Leu Leu Phe Ser His Met Glu Gly Trp Ser Tyr  
 195 200 205  
 Thr Glu Gly Phe Tyr Phe Ala Phe Ile Thr Leu Ser Thr Val Gly Phe  
 210 215 220  
 Gly Asp Tyr Val Ile Gly Met Asn Pro Ser Gln Arg Tyr Pro Leu Trp  
 225 230 235 240  
 Tyr Lys Asn Met Val Ser Leu Trp Ile Leu Phe Gly Met Ala Trp Leu  
 245 250 255  
 Ala Leu Ile Ile Lys Leu Ile Leu Ser Gln Leu Glu Thr Pro Gly Arg  
 260 265 270  
 Val Cys Ser Cys Cys His His Ser Ser Lys Glu Asp Phe Lys Ser Gln  
 275 280 285  
 Ser Trp Arg Gln Gly Pro Asp Arg Glu Pro Glu Ser His Ser Pro Gln  
 290 295 300  
 Gln Gly Cys Tyr Pro Glu Gly Pro Met Gly Ile Ile Gln His Leu Glu  
 305 310 315 320  
 Pro Ser Ala His Ala Ala Gly Cys Gly Lys Asp Ser  
 325 330

<210> 17  
 <211> 3227

<212> DNA  
<213> Homo Sapiens

<220>  
<221> CDS  
<222> (345) ... (2483)

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ttcagctctt tctgtgcctt gggagctgag atgcacgtca gtggccttgc cagcgtggcc 180  
aattctctgc tgactgccag aaaaaagagg ccaggaagaa agaggaaaga gaagagatcg 240  
ctcagggtct gtgggtgtgtc gtccatcctc ttgctgagca cattgaaagg aactggctat 300  
ctttgatctc ttcctccaga tcagagtcaa ggaatgttata atg gac act tca 356  
Met Asp Thr Ser  
1  
  
tcc aaa gaa aat atc cag ttg ttc tgc aaa act tca gtg caa cct gtt 404  
Ser Lys Glu Asn Ile Gln Leu Phe Cys Lys Thr Ser Val Gln Pro Val  
5 10 15 20  
  
gga agg cct tct ttt aaa aca gaa tat ccc tcc tca gaa gaa aag caa 452  
Gly Arg Pro Ser Phe Lys Thr Glu Tyr Pro Ser Ser Glu Glu Lys Gln  
25 30 35  
  
cca tgc tgt ggt gaa cta aag gtg ttc ttg tgt gcc ttg tct ttt gtt 500  
Pro Cys Cys Gly Glu Leu Lys Val Phe Leu Cys Ala Leu Ser Phe Val  
40 45 50  
  
tac ttt gcc aaa gca ttg gca gaa ggc tat ctg aag agc acc atc act 548  
Tyr Phe Ala Lys Ala Leu Ala Glu Gly Tyr Leu Lys Ser Thr Ile Thr  
55 60 65  
  
cag ata gag aga agg ttt gat atc cct tct tca ctg gtg gga gtt att 596  
Gln Ile Glu Arg Arg Phe Asp Ile Pro Ser Ser Leu Val Gly Val Ile  
70 75 80  
  
gat ggt agt ttt gaa att ggg aat ctc tta gtt ata aca ttt gtt agc 644  
Asp Gly Ser Phe Glu Ile Gly Asn Leu Leu Val Ile Thr Phe Val Ser  
85 90 95 100  
  
tac ttt gga gcc aaa ctt cac agg cca aaa ata att gga gca ggg tgt 692  
Tyr Phe Gly Ala Lys Leu His Arg Pro Lys Ile Ile Gly Ala Gly Cys  
105 110 115  
  
gta atc atg gga gtt gga aca ctg ctc att gca atg cct cag ttc ttc 740  
Val Ile Met Gly Val Gly Thr Leu Leu Ile Ala Met Pro Gln Phe Phe  
120 125 130  
  
atg gag cag tac aaa tat gag aga tat tct cct tcc tcc aat tct act 788  
Met Glu Gln Tyr Lys Tyr Glu Arg Tyr Ser Pro Ser Ser Asn Ser Thr  
135 140 145  
  
ctc agc atc tct ccg tgt ctc cta gag tca agc agt caa tta cca gtt 836  
Leu Ser Ile Ser Pro Cys Leu Leu Glu Ser Ser Ser Gln Leu Pro Val  
150 155 160  
  
tca gtt atg gaa aaa tca aaa ata agt aac gaa tgt gaa gtg 884  
Ser Val Met Glu Lys Ser Lys Ser Lys Ile Ser Asn Glu Cys Glu Val  
165 170 175 180  
  
gac act agc tct tcc atg tgg att tat gtt ttc ctg ggc aat ctt ctt 932

Asp Thr Ser Ser Ser Met Trp Ile Tyr Val Phe Leu Gly Asn Leu Leu			
185	190	195	
cgt gga ata gga gaa act ccc att cag cct ttg ggc att gcc tac ctg	980		
Arg Gly Ile Gly Glu Thr Pro Ile Gln Pro Leu Gly Ile Ala Tyr Leu			
200	205	210	
gat gat ttt gcc agt gaa gac aat gca gct ttc tat att ggg tgt gtg	1028		
Asp Asp Phe Ala Ser Glu Asp Asn Ala Ala Phe Tyr Ile Gly Cys Val			
215	220	225	
cag acg gtt gca att ata gga cca atc ttt ggt ttc ctg tta ggc tca	1076		
Gln Thr Val Ala Ile Ile Gly Pro Ile Phe Gly Phe Leu Leu Gly Ser			
230	235	240	
tta tgt gcc aaa cta tat gtt gac att ggc ttt gta aac cta gat cac	1124		
Leu Cys Ala Lys Leu Tyr Val Asp Ile Gly Phe Val Asn Leu Asp His			
245	250	255	260
ata acc att acc cca aaa gat ccc cag tgg gta gga gcc tgg tgg ctt	1172		
Ile Thr Ile Thr Pro Lys Asp Pro Gln Trp Val Gly Ala Trp Trp Leu			
265	270	275	
ggc tat cta ata gca gga atc ata agt ctt ctt gca gct gtg cct ttc	1220		
Gly Tyr Leu Ile Ala Gly Ile Ile Ser Leu Leu Ala Ala Val Pro Phe			
280	285	290	
tgg tat tta cca aag agt tta cca aga tcc caa agt aga gag gat tct	1268		
Trp Tyr Leu Pro Lys Ser Leu Pro Arg Ser Gln Ser Arg Glu Asp Ser			
295	300	305	
aat tct tcc tct gag aaa tcc aag ttt att ata gat gat cac aca gac	1316		
Asn Ser Ser Ser Glu Lys Ser Lys Phe Ile Ile Asp Asp His Thr Asp			
310	315	320	
tac caa aca ccc cag gga gaa aat gca aaa ata atg gaa atg gca aga	1364		
Tyr Gln Thr Pro Gln Gly Glu Asn Ala Lys Ile Met Glu Met Ala Arg			
325	330	335	340
gat ttt ctt cca tca ctg aag aat ctt ttt gga aac cca gta tac ttc	1412		
Asp Phe Leu Pro Ser Leu Lys Asn Leu Phe Gly Asn Pro Val Tyr Phe			
345	350	355	
cta tat tta tgt aca agc act gtt cag ttc aat tct ctg ttc ggc atg	1460		
Leu Tyr Leu Cys Thr Ser Thr Val Gln Phe Asn Ser Leu Phe Gly Met			
360	365	370	
gtg acg tac aaa cca aag tac att gag cag cag tat gga cag tca tcc	1508		
Val Thr Tyr Lys Pro Lys Tyr Ile Glu Gln Gln Tyr Gly Gln Ser Ser			
375	380	385	
tcc agg gcc aac ttt gtg atc ggg ctc atc aac att cca gca gtg gcc	1556		
Ser Arg Ala Asn Phe Val Ile Gly Leu Ile Asn Ile Pro Ala Val Ala			
390	395	400	
ctt gga ata ttc tct ggg ggg ata gtt atg aaa aaa ttc aga atc agt	1604		
Leu Gly Ile Phe Ser Gly Gly Ile Val Met Lys Lys Phe Arg Ile Ser			
405	410	415	420
gtg tgt gga gct gca aaa ctc tac ttg gga tca tct gtc ttt ggt tac	1652		
Val Cys Gly Ala Ala Lys Leu Tyr Leu Gly Ser Ser Val Phe Gly Tyr			
425	430	435	

ctc cta ttt ctt tcc ctg ttt gca ctg ggc tgc gaa aat tct gat gtg Leu Leu Phe Leu Ser Leu Phe Ala Leu Gly Cys Glu Asn Ser Asp Val 440 445 450	1700
gca gga cta act gtc tcc tac caa gga acc aaa cct gtc tct tat cat Ala Gly Leu Thr Val Ser Tyr Gln Gly Thr Lys Pro Val Ser Tyr His 455 460 465	1748
gaa cga gct ctc ttt tca gat tgc aac tca aga tgc aaa tgt tca gag Glu Arg Ala Leu Phe Ser Asp Cys Asn Ser Arg Cys Lys Cys Ser Glu 470 475 480	1796
aca aaa tgg gaa ccc atg tgc ggt gaa aat gga atc aca tat gta tca Thr Lys Trp Glu Pro Met Cys Gly Glu Asn Gly Ile Thr Tyr Val Ser 485 490 495 500	1844
gct tgt ctt gct ggt tgt caa acc tcc aac agg agt gga aaa aat att Ala Cys Leu Ala Gly Cys Gln Thr Ser Asn Arg Ser Gly Lys Asn Ile 505 510 515	1892
ata ttt tac aac tgc act tgt gtg gga att gca gct tct aaa tcc gga Ile Phe Tyr Asn Cys Thr Cys Val Gly Ile Ala Ala Ser Lys Ser Gly 520 525 530	1940
aat tcc tca ggc ata gtg gga aga tgt cag aaa gac aat gga tgt ccc Asn Ser Ser Gly Ile Val Gly Arg Cys Gln Lys Asp Asn Gly Cys Pro 535 540 545	1988
caa atg ttt ctg tat ttc ctt gta att tca gtc atc aca tcc tat act Gln Met Phe Leu Tyr Phe Leu Val Ile Ser Val Ile Thr Ser Tyr Thr 550 555 560	2036
tta tcc cta ggt ggc ata cct gga tac ata tta ctt ctg agg tgc att Leu Ser Leu Gly Gly Ile Pro Gly Tyr Ile Leu Leu Leu Arg Cys Ile 565 570 575 580	2084
aag cca cag ctt aag tct ttt gcc ttg ggt atc tac aca tta gca ata Lys Pro Gln Leu Lys Ser Phe Ala Leu Gly Ile Tyr Thr Leu Ala Ile 585 590 595	2132
aga gtt ctt gca gga atc cca gct cca gtg tat ttt gga gtt ttg att Arg Val Leu Ala Gly Ile Pro Ala Pro Val Tyr Phe Gly Val Leu Ile 600 605 610	2180
gat act tca tgc ctc aaa tgg gga ttt aaa aga tgt gga agt aga gga Asp Thr Ser Cys Leu Lys Trp Gly Phe Lys Arg Cys Gly Ser Arg Gly 615 620 625	2228
tca tgc aga tta tat gat tca aat gtc ttc aga cat ata tat ctg gga Ser Cys Arg Leu Tyr Asp Ser Asn Val Phe Arg His Ile Tyr Leu Gly 630 635 640	2276
cta act gtg ata ctg ggc aca gtg tca att ctc cta agc att gca gta Leu Thr Val Ile Leu Gly Thr Val Ser Ile Leu Leu Ser Ile Ala Val 645 650 655 660	2324
ctt ttc att tta aag aaa aat tat gtt tca aaa cac aga agt ttt ata Leu Phe Ile Leu Lys Lys Asn Tyr Val Ser Lys His Arg Ser Phe Ile 665 670 675	2372
acc aag aga gaa aga aca atg gtg tct aca aga ttc caa aag gaa aat	2420

Thr Lys Arg Glu Arg Thr Met Val Ser Thr Arg Phe Gln Lys Glu Asn  
 680 685 690  
 tac act aca agt gat cat ctg cta caa ccc aac tac tgg cca ggc aag 2468  
 Tyr Thr Thr Ser Asp His Leu Leu Gln Pro Asn Tyr Trp Pro Gly Lys  
 695 700 705  
 gaa act caa ctt tag aaacatgatg actggaagtc atgtcttcta attgggtgac 2523  
 Glu Thr Gln Leu \*  
 710  
 attttgcaaa caaataaaatt gtaatcaaaaa gagctctaaa tttgttaattt ctttctcctt 2583  
 tcaaaaaatg tctactttgt tttggccta ggcatttagt aatataactg ataataatact 2643  
 gaaacatata atgaaagatg cagatgataa aactaattt gaactttta atttatataa 2703  
 attatttat atcacttact tatttcactt tatttgctt tgcgtcatt gatataattt 2763  
 agctgtactc ctgaaagaac aattgtctct attgtcacac atggttatata tttaaagtaat 2823  
 ttctgaactg tgaatgtgt ctagagtaag caaatactgc taacaattaa ctcatacctt 2883  
 gggttcccttc aagtattact cctatagtat tttctcccat agctgtcttc atctgtgtat 2943  
 tttaataatg atcttaggat ggagcagaac atggagagga agatttcatt ttaagctcct 3003  
 cctttcttt gaaatacaat aatttatata gaaatgtgtt gcagcaaatt atattgggaa 3063  
 tttagaatttt gaattaatag ctctcctact attaatttac atgtgcttt tgcgtggcgc 3123  
 tataagtgac tatggttgta aagtaataaaa attgatgta acatgccc aaaaaaaaaaa 3183  
 aaaaaaaaaacc aaaaaaaaaaaa aaaaaaaaaagg gcgggcccgt agac 3227

<210> 18  
 <211> 712  
 <212> PRT  
 <213> Homo Sapiens

<400> 18  
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 Val Gln Pro Val Gly Arg Pro Ser Phe Lys Thr Glu Tyr Pro Ser Ser  
 20 25 30  
 Glu Glu Lys Gln Pro Cys Cys Gly Glu Leu Lys Val Phe Leu Cys Ala  
 35 40 45  
 Leu Ser Phe Val Tyr Phe Ala Lys Ala Leu Ala Glu Gly Tyr Leu Lys  
 50 55 60  
 Ser Thr Ile Thr Gln Ile Glu Arg Arg Phe Asp Ile Pro Ser Ser Leu  
 65 70 75 80  
 Val Gly Val Ile Asp Gly Ser Phe Glu Ile Gly Asn Leu Leu Val Ile  
 85 90 95  
 Thr Phe Val Ser Tyr Phe Gly Ala Lys Leu His Arg Pro Lys Ile Ile  
 100 105 110  
 Gly Ala Gly Cys Val Ile Met Gly Val Gly Thr Leu Leu Ile Ala Met  
 115 120 125  
 Pro Gln Phe Phe Met Glu Gln Tyr Lys Tyr Glu Arg Tyr Ser Pro Ser  
 130 135 140  
 Ser Asn Ser Thr Leu Ser Ile Ser Pro Cys Leu Leu Glu Ser Ser Ser  
 145 150 155 160  
 Gln Leu Pro Val Ser Val Met Glu Lys Ser Lys Ser Lys Ile Ser Asn  
 165 170 175  
 Glu Cys Glu Val Asp Thr Ser Ser Ser Met Trp Ile Tyr Val Phe Leu  
 180 185 190  
 Gly Asn Leu Leu Arg Gly Ile Gly Glu Thr Pro Ile Gln Pro Leu Gly  
 195 200 205  
 Ile Ala Tyr Leu Asp Asp Phe Ala Ser Glu Asp Asn Ala Ala Phe Tyr  
 210 215 220  
 Ile Gly Cys Val Gln Thr Val Ala Ile Ile Gly Pro Ile Phe Gly Phe  
 225 230 235 240  
 Leu Leu Gly Ser Leu Cys Ala Lys Leu Tyr Val Asp Ile Gly Phe Val  
 245 250 255

Asn Leu Asp His Ile Thr Ile Thr Pro Lys Asp Pro Gln Trp Val Gly  
 260 265 270  
 Ala Trp Trp Leu Gly Tyr Leu Ile Ala Gly Ile Ile Ser Leu Leu Ala  
 275 280 285  
 Ala Val Pro Phe Trp Tyr Leu Pro Lys Ser Leu Pro Arg Ser Gln Ser  
 290 295 300  
 Arg Glu Asp Ser Asn Ser Ser Ser Glu Lys Ser Lys Phe Ile Ile Asp  
 305 310 315 320  
 Asp His Thr Asp Tyr Gln Thr Pro Gln Gly Glu Asn Ala Lys Ile Met  
 325 330 335  
 Glu Met Ala Arg Asp Phe Leu Pro Ser Leu Lys Asn Leu Phe Gly Asn  
 340 345 350  
 Pro Val Tyr Phe Leu Tyr Leu Cys Thr Ser Thr Val Gln Phe Asn Ser  
 355 360 365  
 Leu Phe Gly Met Val Thr Tyr Lys Pro Lys Tyr Ile Glu Gln Gln Tyr  
 370 375 380  
 Gly Gln Ser Ser Ser Arg Ala Asn Phe Val Ile Gly Leu Ile Asn Ile  
 385 390 395 400  
 Pro Ala Val Ala Leu Gly Ile Phe Ser Gly Gly Ile Val Met Lys Lys  
 405 410 415  
 Phe Arg Ile Ser Val Cys Gly Ala Ala Lys Leu Tyr Leu Gly Ser Ser  
 420 425 430  
 Val Phe Gly Tyr Leu Leu Phe Leu Ser Leu Phe Ala Leu Gly Cys Glu  
 435 440 445  
 Asn Ser Asp Val Ala Gly Leu Thr Val Ser Tyr Gln Gly Thr Lys Pro  
 450 455 460  
 Val Ser Tyr His Glu Arg Ala Leu Phe Ser Asp Cys Asn Ser Arg Cys  
 465 470 475 480  
 Lys Cys Ser Glu Thr Lys Trp Glu Pro Met Cys Gly Glu Asn Gly Ile  
 485 490 495  
 Thr Tyr Val Ser Ala Cys Leu Ala Gly Cys Gln Thr Ser Asn Arg Ser  
 500 505 510  
 Gly Lys Asn Ile Ile Phe Tyr Asn Cys Thr Cys Val Gly Ile Ala Ala  
 515 520 525  
 Ser Lys Ser Gly Asn Ser Ser Gly Ile Val Gly Arg Cys Gln Lys Asp  
 530 535 540  
 Asn Gly Cys Pro Gln Met Phe Leu Tyr Phe Leu Val Ile Ser Val Ile  
 545 550 555 560  
 Thr Ser Tyr Thr Leu Ser Leu Gly Gly Ile Pro Gly Tyr Ile Leu Leu  
 565 570 575  
 Leu Arg Cys Ile Lys Pro Gln Leu Lys Ser Phe Ala Leu Gly Ile Tyr  
 580 585 590  
 Thr Leu Ala Ile Arg Val Leu Ala Gly Ile Pro Ala Pro Val Tyr Phe  
 595 600 605  
 Gly Val Leu Ile Asp Thr Ser Cys Leu Lys Trp Gly Phe Lys Arg Cys  
 610 615 620  
 Gly Ser Arg Gly Ser Cys Arg Leu Tyr Asp Ser Asn Val Phe Arg His  
 625 630 635 640  
 Ile Tyr Leu Gly Leu Thr Val Ile Leu Gly Thr Val Ser Ile Leu Leu  
 645 650 655  
 Ser Ile Ala Val Leu Phe Ile Leu Lys Lys Asn Tyr Val Ser Lys His  
 660 665 670  
 Arg Ser Phe Ile Thr Lys Arg Glu Arg Thr Met Val Ser Thr Arg Phe  
 675 680 685  
 Gln Lys Glu Asn Tyr Thr Thr Ser Asp His Leu Leu Gln Pro Asn Tyr  
 690 695 700  
 Trp Pro Gly Lys Glu Thr Gln Leu  
 705 710

<210> 19  
 <211> 2133

<212> DNA  
<213> Homo Sapiens

<220>  
<221> CDS  
<222> (1) . . . (2133)

<400> 19  
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Met Gln Gly Lys Lys Pro Gly Gly Ser Ser Gly Gly Arg Ser Gly  
1 5 10 15  
  
gag ctg cag ggg gac gag gcg cag agg aac aag aaa aag aag aag aag 96  
Glu Leu Gln Gly Asp Glu Ala Gln Arg Asn Lys Lys Lys Lys Lys Lys  
20 25 30  
  
gtg tcc tgc ttt tcc aac atc aag atc ttc ctg gtg tcc gag tgc gcc 144  
Val Ser Cys Phe Ser Asn Ile Lys Ile Phe Leu Val Ser Glu Cys Ala  
35 40 45  
  
ctg atg ctg gcg cag ggc acg gtg ggc gcc tac ctg gtg agc gtc ctg 192  
Leu Met Leu Ala Gln Gly Thr Val Gly Ala Tyr Leu Val Ser Val Leu  
50 55 60  
  
acc acc ctg gag cgt agg ttc aac ctg cag agc gct gac gtg ggt gtg 240  
Thr Thr Leu Glu Arg Arg Phe Asn Leu Gln Ser Ala Asp Val Gly Val  
65 70 75 80  
  
atc gct agc agc ttc gag atc ggg aac ctg gcg ctc atc ctc ttc gtg 288  
Ile Ala Ser Ser Phe Glu Ile Gly Asn Leu Ala Leu Ile Leu Phe Val  
85 90 95  
  
agc tac ttc ggg gca cgc ggg cac cgg ccg cgc ctg atc ggc tgc ggc 336  
Ser Tyr Phe Gly Ala Arg Gly His Arg Pro Arg Leu Ile Gly Cys Gly  
100 105 110  
  
ggc atc gtc atg gcg ctg ggc gcg ctg ctg tcg gcg ctg ccc gag ttc 384  
Gly Ile Val Met Ala Leu Gly Ala Leu Leu Ser Ala Leu Pro Glu Phe  
115 120 125  
  
ctg acc cac cag tac aag tac gag gcg ggc gag atc cgc tgg ggc gcc 432  
Leu Thr His Gln Tyr Lys Tyr Glu Ala Gly Glu Ile Arg Trp Gly Ala  
130 135 140  
  
gag ggc cgc gac gtc tgc gca gcc aac ggc tcg ggc ggc gac gag ggg 480  
Glu Gly Arg Asp Val Cys Ala Ala Asn Gly Ser Gly Gly Asp Glu Gly  
145 150 155 160  
  
ccc gac ccc gac ctc atc tgc cgc aac cgg acg gct acc aac atg atg 528  
Pro Asp Pro Asp Leu Ile Cys Arg Asn Arg Thr Ala Thr Asn Met Met  
165 170 175  
  
tac ttg ctg ctc att ggg gcc cag gtg ctc ctg ggc atc ggt gct acc 576  
Tyr Leu Leu Leu Ile Gly Ala Gln Val Leu Leu Gly Ile Gly Ala Thr  
180 185 190  
  
cct gtg cag ccc ctg ggc gtc tcc tac atc gac gac cac gtg cgg agg 624  
Pro Val Gln Pro Leu Gly Val Ser Tyr Ile Asp Asp His Val Arg Arg  
195 200 205  
  
aag gac tcc tcg ctc tat ata gga atc ctg ttc acg atg ctg gta ttt 672  
Lys Asp Ser Ser Leu Tyr Ile Gly Ile Leu Phe Thr Met Leu Val Phe

210

215

220

gga cca gcc tgc ggg ttt atc ctg ggc tct ttc tgt acc aaa atc tac 720  
 Gly Pro Ala Cys Gly Phe Ile Leu Gly Ser Phe Cys Thr Lys Ile Tyr  
 225 230 235 240

gtg gat gcg gtc ttc att gac aca agt aac ctg gac atc act ccg gac 768  
 Val Asp Ala Val Phe Ile Asp Thr Ser Asn Leu Asp Ile Thr Pro Asp  
 245 250 255

gac ccc cgc tgg atc gga gcc tgg tgg ggt ggc ttt ctg ctc tgc ggt 816  
 Asp Pro Arg Trp Ile Gly Ala Trp Trp Gly Gly Phe Leu Leu Cys Gly  
 260 265 270

gcc tta ctc ttc ttc tct tcc ctc ttg atg ttt ggg ttt cca cag tcc 864  
 Ala Leu Leu Phe Phe Ser Ser Leu Leu Met Phe Gly Phe Pro Gln Ser  
 275 280 285

ctg ccc ccg cac tca gac ccc gcc atg gaa agc gag cag gcc atg ctc 912  
 Leu Pro Pro His Ser Asp Pro Ala Met Glu Ser Glu Gln Ala Met Leu  
 290 295 300

tcc gaa aga gaa tac gag aga ccc aag ccc agc aac ggg gtc ctg agg 960  
 Ser Glu Arg Glu Tyr Glu Arg Pro Lys Pro Ser Asn Gly Val Leu Arg  
 305 310 315 320

cac ccc ctg gag cca gac agc agt gcc tcc tgt ttc cag cag ctg aga 1008  
 His Pro Leu Glu Pro Asp Ser Ser Ala Ser Cys Phe Gln Gln Leu Arg  
 325 330 335

gtg atc ccg aag gtc acc aag cac ctg ctc tca aac cct gtg ttc acc 1056  
 Val Ile Pro Lys Val Thr Lys His Leu Leu Ser Asn Pro Val Phe Thr  
 340 345 350

tgc atc atc ctg gcc gcc tgc atg gag att gca gtg gtg gct ggc ttc 1104  
 Cys Ile Ile Leu Ala Ala Cys Met Glu Ile Ala Val Val Ala Gly Phe  
 355 360 365

gct gcc ttt ttg ggg aag tac ctg gag cag cag ttt aac ctc acc acc 1152  
 Ala Ala Phe Leu Gly Lys Tyr Leu Glu Gln Gln Phe Asn Leu Thr Thr  
 370 375 380

tct tct gcc aac cag ctg ctt ggg atg act gcg atc ccg tgt gct tgt 1200  
 Ser Ser Ala Asn Gln Leu Leu Gly Met Thr Ala Ile Pro Cys Ala Cys  
 385 390 395 400

ctg ggt atc ttc ctg gga ggt ctt ttg gtg aag aag ctc agc ctg tct 1248  
 Leu Gly Ile Phe Leu Gly Gly Leu Leu Val Lys Lys Leu Ser Leu Ser  
 405 410 415

gcc ctg ggg gcc att cgg atg gcc atg ctc gtc aac ctg gtg tcc act 1296  
 Ala Leu Gly Ala Ile Arg Met Ala Met Leu Val Asn Leu Val Ser Thr  
 420 425 430

gct tgc tac gtc tcc ttc ctc ttc ctg ggc tgc gac act ggc cct gtg 1344  
 Ala Cys Tyr Val Ser Phe Leu Phe Leu Gly Cys Asp Thr Gly Pro Val  
 435 440 445

gct ggg gtt act gtt ccc tat gga aac agc aca gca cct ggc tca gcc 1392  
 Ala Gly Val Thr Val Pro Tyr Gly Asn Ser Thr Ala Pro Gly Ser Ala  
 450 455 460

ctg gac ccc tac tcg ccc tgc aat aat aac tgt gaa tgc caa acc gat Leu Asp Pro Tyr Ser Pro Cys Asn Asn Asn Cys Glu Cys Gln Thr Asp 465 470 475 480	1440
tcc ttc act cca gtg tgt ggg gca gat ggc atc acc tac ctg tct gcc Ser Phe Thr Pro Val Cys Gly Ala Asp Gly Ile Thr Tyr Leu Ser Ala 485 490 495	1488
tgc ttt gct ggc tgc aac agc acg aat ctc acg ggc tgt gcg tgc ctc Cys Phe Ala Gly Cys Asn Ser Thr Asn Leu Thr Gly Cys Ala Cys Leu 500 505 510	1536
acc acc gtc cct gct gag aac gca acc gtg gtt cct gga aaa tgc ccc Thr Thr Val Pro Ala Glu Asn Ala Thr Val Val Pro Gly Lys Cys Pro 515 520 525	1584
agt cct ggg tgc caa gag gcc ttc ctc act ttc ctc tgt gtg atg tgt Ser Pro Gly Cys Gln Glu Ala Phe Leu Thr Phe Leu Cys Val Met Cys 530 535 540	1632
atc tgc agc ctg atc ggt gcc atg gca cag aca ccc tca gtc atc atc Ile Cys Ser Leu Ile Gly Ala Met Ala Gln Thr Pro Ser Val Ile Ile 545 550 555 560	1680
ctc atc agg aca gtc agc cct gaa ctc aag tct tac gct ttg gga gtt Leu Ile Arg Thr Val Ser Pro Glu Leu Lys Ser Tyr Ala Leu Gly Val 565 570 575	1728
ctt ttt ctc ctc ctt cgt ttg ggc ttc atc cct cca ccc ctc atc Leu Phe Leu Leu Arg Leu Leu Gly Phe Ile Pro Pro Pro Leu Ile 580 585 590	1776
ttc ggg gct ggc atc gac tcc acc tgc ctg ttc tgg agc acg ttc tgt Phe Gly Ala Gly Ile Asp Ser Thr Cys Leu Phe Trp Ser Thr Phe Cys 595 600 605	1824
ggg gag caa ggc gcc tgc ctc tac gac aat gtg gtc tac cga tac Gly Glu Gln Gly Ala Cys Val Leu Tyr Asp Asn Val Val Tyr Arg Tyr 610 615 620	1872
ctg tat gtc agc atc gcc atc gcg ctc aaa tcc ttc gcc ttc atc ctg Leu Tyr Val Ser Ile Ala Ile Ala Leu Lys Ser Phe Ala Phe Ile Leu 625 630 635 640	1920
tac acc acc acg tgg cag tgc ctg agg aaa aac tat aaa cgc tac atc Tyr Thr Thr Trp Gln Cys Leu Arg Lys Asn Tyr Lys Arg Tyr Ile 645 650 655	1968
aaa aac cac gag ggc ggg ctg agc acc agt gag ttc ttt gcc tct act Lys Asn His Glu Gly Leu Ser Thr Ser Glu Phe Phe Ala Ser Thr 660 665 670	2016
ctg acc cta gac aac ctg ggg agg gac cct gtg ccc gca aac cag aca Leu Thr Leu Asp Asn Leu Gly Arg Asp Pro Val Pro Ala Asn Gln Thr 675 680 685	2064
cat agg aca aag ttt atc tat aac ctg gaa gac cat gag tgg tgt gaa His Arg Thr Lys Phe Ile Tyr Asn Leu Glu Asp His Glu Trp Cys Glu 690 695 700	2112
aac atg gag tcc gtt tta tag Asn Met Glu Ser Val Leu *	2133

<210> 20  
 <211> 710  
 <212> PRT  
 <213> Homo Sapiens

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 1 5 10 15  
 Glu Leu Gln Gly Asp Glu Ala Gln Arg Asn Lys Lys Lys Lys Lys Lys  
 20 25 30  
 Val Ser Cys Phe Ser Asn Ile Lys Ile Phe Leu Val Ser Glu Cys Ala  
 35 40 45  
 Leu Met Leu Ala Gln Gly Thr Val Gly Ala Tyr Leu Val Ser Val Leu  
 50 55 60  
 Thr Thr Leu Glu Arg Arg Phe Asn Leu Gln Ser Ala Asp Val Gly Val  
 65 70 75 80  
 Ile Ala Ser Ser Phe Glu Ile Gly Asn Leu Ala Leu Ile Leu Phe Val  
 85 90 95  
 Ser Tyr Phe Gly Ala Arg Gly His Arg Pro Arg Leu Ile Gly Cys Gly  
 100 105 110  
 Gly Ile Val Met Ala Leu Gly Ala Leu Leu Ser Ala Leu Pro Glu Phe  
 115 120 125  
 Leu Thr His Gln Tyr Lys Tyr Glu Ala Gly Glu Ile Arg Trp Gly Ala  
 130 135 140  
 Glu Gly Arg Asp Val Cys Ala Ala Asn Gly Ser Gly Gly Asp Glu Gly  
 145 150 155 160  
 Pro Asp Pro Asp Leu Ile Cys Arg Asn Arg Thr Ala Thr Asn Met Met  
 165 170 175  
 Tyr Leu Leu Leu Ile Gly Ala Gln Val Leu Leu Gly Ile Gly Ala Thr  
 180 185 190  
 Pro Val Gln Pro Leu Gly Val Ser Tyr Ile Asp Asp His Val Arg Arg  
 195 200 205  
 Lys Asp Ser Ser Leu Tyr Ile Gly Ile Leu Phe Thr Met Leu Val Phe  
 210 215 220  
 Gly Pro Ala Cys Gly Phe Ile Leu Gly Ser Phe Cys Thr Lys Ile Tyr  
 225 230 235 240  
 Val Asp Ala Val Phe Ile Asp Thr Ser Asn Leu Asp Ile Thr Pro Asp  
 245 250 255  
 Asp Pro Arg Trp Ile Gly Ala Trp Trp Gly Gly Phe Leu Leu Cys Gly  
 260 265 270  
 Ala Leu Leu Phe Phe Ser Ser Leu Leu Met Phe Gly Phe Pro Gln Ser  
 275 280 285  
 Leu Pro Pro His Ser Asp Pro Ala Met Glu Ser Glu Gln Ala Met Leu  
 290 295 300  
 Ser Glu Arg Glu Tyr Glu Arg Pro Lys Pro Ser Asn Gly Val Leu Arg  
 305 310 315 320  
 His Pro Leu Glu Pro Asp Ser Ser Ala Ser Cys Phe Gln Gln Leu Arg  
 325 330 335  
 Val Ile Pro Lys Val Thr Lys His Leu Leu Ser Asn Pro Val Phe Thr  
 340 345 350  
 Cys Ile Ile Leu Ala Ala Cys Met Glu Ile Ala Val Val Ala Gly Phe  
 355 360 365  
 Ala Ala Phe Leu Gly Lys Tyr Leu Glu Gln Gln Phe Asn Leu Thr Thr  
 370 375 380  
 Ser Ser Ala Asn Gln Leu Leu Gly Met Thr Ala Ile Pro Cys Ala Cys  
 385 390 395 400  
 Leu Gly Ile Phe Leu Gly Gly Leu Leu Val Lys Lys Leu Ser Leu Ser  
 405 410 415  
 Ala Leu Gly Ala Ile Arg Met Ala Met Leu Val Asn Leu Val Ser Thr

420	425	430
Ala Cys Tyr Val Ser Phe Leu Phe Leu Gly Cys Asp Thr Gly Pro Val		
435	440	445
Ala Gly Val Thr Val Pro Tyr Gly Asn Ser Thr Ala Pro Gly Ser Ala		
450	455	460
Leu Asp Pro Tyr Ser Pro Cys Asn Asn Asn Cys Glu Cys Gln Thr Asp		
465	470	475
Ser Phe Thr Pro Val Cys Gly Ala Asp Gly Ile Thr Tyr Leu Ser Ala		
485	490	495
Cys Phe Ala Gly Cys Asn Ser Thr Asn Leu Thr Gly Cys Ala Cys Leu		
500	505	510
Thr Thr Val Pro Ala Glu Asn Ala Thr Val Val Pro Gly Lys Cys Pro		
515	520	525
Ser Pro Gly Cys Gln Glu Ala Phe Leu Thr Phe Leu Cys Val Met Cys		
530	535	540
Ile Cys Ser Leu Ile Gly Ala Met Ala Gln Thr Pro Ser Val Ile Ile		
545	550	555
Leu Ile Arg Thr Val Ser Pro Glu Leu Lys Ser Tyr Ala Leu Gly Val		
565	570	575
Leu Phe Leu Leu Arg Leu Leu Gly Phe Ile Pro Pro Pro Leu Ile		
580	585	590
Phe Gly Ala Gly Ile Asp Ser Thr Cys Leu Phe Trp Ser Thr Phe Cys		
595	600	605
Gly Glu Gln Gly Ala Cys Val Leu Tyr Asp Asn Val Val Tyr Arg Tyr		
610	615	620
Leu Tyr Val Ser Ile Ala Ile Ala Leu Lys Ser Phe Ala Phe Ile Leu		
625	630	635
Tyr Thr Thr Trp Gln Cys Leu Arg Lys Asn Tyr Lys Arg Tyr Ile		
645	650	655
Lys Asn His Glu Gly Leu Ser Thr Ser Glu Phe Phe Ala Ser Thr		
660	665	670
Leu Thr Leu Asp Asn Leu Gly Arg Asp Pro Val Pro Ala Asn Gln Thr		
675	680	685
His Arg Thr Lys Phe Ile Tyr Asn Leu Glu Asp His Glu Trp Cys Glu		
690	695	700
Asn Met Glu Ser Val Leu		
705	710	

<210> 21  
 <211> 4197  
 <212> DNA  
 <213> Homo Sapiens

<220>  
 <221> CDS  
 <222> (1)...(3348)

<400> 21		
atg agg aga ctg agt ttg tgg ctg ctg agc agg gtc tgt ctg ctg		48
Met Arg Arg Leu Ser Leu Trp Trp Leu Leu Ser Arg Val Cys Leu Leu		
1	5	10
		15
ttg ccg ccg ccc tgc gca ctg gtg ctg gcc ggg gtg ccc agc tcc tcc		96
Leu Pro Pro Pro Cys Ala Leu Val Leu Ala Gly Val Pro Ser Ser Ser		
20	25	30
tcg cac ccg cag ccc tgc cag atc ctc aag cgc atc ggg cac gcg gtg		144
Ser His Pro Gln Pro Cys Gln Ile Leu Lys Arg Ile Gly His Ala Val		
35	40	45
agg gtg ggc gcg gtg cac ttg cag ccc tgg acc acc gcc ccc cgc gcg		192

Arg Val Gly Ala Val His Leu Gln Pro Trp Thr Thr Ala Pro Arg Ala		
50	55	60
gcc agc cgc gct ccg gac gac agc cga gca gga gcc cag agg gat gag		240
Ala Ser Arg Ala Pro Asp Asp Ser Arg Ala Gly Ala Gln Arg Asp Glu		
65	70	75
ccg gag cca ggg act agg cg <sup>g</sup> tcc ccg g <sup>c</sup> ccc tcg ccg ggc gca cgc		288
Pro Glu Pro Gly Thr Arg Arg Ser Pro Ala Pro Ser Pro Gly Ala Arg		
85	90	95
tgg ttg ggg agc acc ctg cat ggc cg <sup>g</sup> ggg ccg ccg ggc tcc cgt aag		336
Trp Leu Gly Ser Thr Leu His Gly Arg Gly Pro Pro Gly Ser Arg Lys		
100	105	110
ccc ggg gag ggc gcc agg g <sup>c</sup> g <sup>g</sup> g <sup>g</sup> gac gcc ctc		384
Pro Gly Glu Gly Ala Arg Ala Glu Ala Leu Trp Pro Arg Asp Ala Leu		
115	120	125
cta ttt gcc gtg gac aac ctg aac cgc gtg gaa ggg ctg cta ccc tac		432
Leu Phe Ala Val Asp Asn Leu Asn Arg Val Glu Gly Leu Leu Pro Tyr		
130	135	140
aac ctg tct ttg gaa gta gtg atg gcc atc gag gca ggc ctg ggc gat		480
Asn Leu Ser Leu Glu Val Val Met Ala Ile Glu Ala Gly Leu Gly Asp		
145	150	155
160		
ctg cca ctt ttg ccc ttc tcc cct agt tcg cca tgg agc agt gac		528
Leu Pro Leu Leu Pro Phe Ser Ser Pro Ser Ser Pro Trp Ser Ser Asp		
165	170	175
cct ttc tcc ttc ctg caa agt gtg tgc cat acc gtg gtg gtg caa ggg		576
Pro Phe Ser Phe Leu Gln Ser Val Cys His Thr Val Val Val Gln Gly		
180	185	190
gtg tcg gcg ctg ctc gcc ttc ccc cag agc cag ggc gaa atg atg gag		624
Val Ser Ala Leu Leu Ala Phe Pro Gln Ser Gln Gly Glu Met Met Glu		
195	200	205
ctc gac ttg gtc agc tta gtc ctg cac att cca gtg atc agc atc gtg		672
Leu Asp Leu Val Ser Leu Val Leu His Ile Pro Val Ile Ser Ile Val		
210	215	220
cgc cac gag ttt ccg cgg gag agt cag aat ccc ctt cac cta caa ctg		720
Arg His Glu Phe Pro Arg Glu Ser Gln Asn Pro Leu His Leu Gln Leu		
225	230	235
240		
agt tta gaa aat tca tta agt tct gat gct gat gtc act gtc tca atc		768
Ser Leu Glu Asn Ser Leu Ser Ser Asp Ala Asp Val Thr Val Ser Ile		
245	250	255
ctg acc atg aac aac tgg tac aat ttt agc ttg ttg ctg tgc cag gaa		816
Leu Thr Met Asn Asn Trp Tyr Asn Phe Ser Leu Leu Leu Cys Gln Glu		
260	265	270
gac tgg aac atc acc gac ttc ctc ctt acc cag aat aat tcc aag		864
Asp Trp Asn Ile Thr Asp Phe Leu Leu Leu Thr Gln Asn Asn Ser Lys		
275	280	285
ttc cac ctt ggt tct atc atc aac atc acc gct aac ctc ccc tcc acc		912
Phe His Leu Gly Ser Ile Ile Asn Ile Thr Ala Asn Leu Pro Ser Thr		
290	295	300

cag gac ctc ttg agc ttc cta cag atc cag ctt gag agt att aag aac Gln Asp Leu Leu Ser Phe Leu Gln Ile Gln Leu Glu Ser Ile Lys Asn 305 310 315 320	960
agc aca ccc aca gtg gtg atg ttt ggc tgc gac atg gaa agt atc cgg Ser Thr Pro Thr Val Val Met Phe Gly Cys Asp Met Glu Ser Ile Arg 325 330 335	1008
cgg att ttc gaa att aca acc cag ttt ggg gtc atg ccc cct gaa ctt Arg Ile Phe Glu Ile Thr Thr Gln Phe Gly Val Met Pro Pro Glu Leu 340 345 350	1056
cgt tgg gtg ctg gga gat tcc cag aat atg gag gaa ctg agg aca gag Arg Trp Val Leu Gly Asp Ser Gln Asn Met Glu Glu Leu Arg Thr Glu 355 360 365	1104
ggc ctc ccc tta gga ctc att gct cat gga aaa aca aca cag tct gtc Gly Leu Pro Leu Gly Leu Ile Ala His Gly Lys Thr Thr Gln Ser Val 370 375 380	1152
ttt gag cac tac gta caa gat gct atg gag ctg gtc gca aga gct gta Phe Glu His Tyr Val Gln Asp Ala Met Glu Leu Val Ala Arg Ala Val 385 390 395 400	1200
gcc aca gcc acc atg atc caa cca gaa ctt gct ctc att ccc agc acg Ala Thr Ala Thr Met Ile Gln Pro Glu Leu Ala Leu Ile Pro Ser Thr 405 410 415	1248
atg aac tgc atg gag gtg gaa act aca aat ctc act tca gga caa tat Met Asn Cys Met Glu Val Glu Thr Thr Asn Leu Thr Ser Gly Gln Tyr 420 425 430	1296
tta tca agg ttt cta gcc aat acc act ttc aga ggc ctc agt ggt tcc Leu Ser Arg Phe Leu Ala Asn Thr Thr Phe Arg Gly Leu Ser Gly Ser 435 440 445	1344
att aga gta aaa ggt tcc acc atc gtc agc tca gaa aac aac ttt ttc Ile Arg Val Lys Gly Ser Thr Ile Val Ser Ser Glu Asn Asn Phe Phe 450 455 460	1392
atc tgg aat ctt caa cat gac ccc atg gga aag cca atg tgg acc cgc Ile Trp Asn Leu Gln His Asp Pro Met Gly Lys Pro Met Trp Thr Arg 465 470 475 480	1440
ttg ggc agc tgg cag ggg aga aag att gtc atg gac tat gga ata tgg Leu Gly Ser Trp Gln Gly Arg Lys Ile Val Met Asp Tyr Gly Ile Trp 485 490 495	1488
cca gag cag gcc cag aga cac aaa acc cac ttc caa cat cca agt aag Pro Glu Gln Ala Gln Arg His Lys Thr His Phe Gln His Pro Ser Lys 500 505 510	1536
cta cac ttg aga gtg gtt acc ctg att gag cat cct ttt gtc ttc aca Leu His Leu Arg Val Val Thr Leu Ile Glu His Pro Phe Val Phe Thr 515 520 525	1584
agg gag gta gat gat gaa ggc ttg tgc cct gct ggc caa ctc tgt cta Arg Glu Val Asp Asp Glu Gly Leu Cys Pro Ala Gly Gln Leu Cys Leu 530 535 540	1632
gac ccc atg act aat gac tct tcc aca ctg gac agc ctt ttt agc agc	1680

Asp Pro Met Thr Asn Asp Ser Ser Thr Leu Asp Ser Leu Phe Ser Ser			
545	550	555	560
ctc cat agc agt aat gat aca gtg ccc att aaa ttc aag aag tgc tgc			1728
Leu His Ser Ser Asn Asp Thr Val Pro Ile Lys Phe Lys Lys Cys Cys			
565	570	575	
tat gga tat tgc att gat ctg ctg gaa aag ata gca gaa gac atg aac			1776
Tyr Gly Tyr Cys Ile Asp Leu Leu Glu Lys Ile Ala Glu Asp Met Asn			
580	585	590	
ttt gac ttc gac ctc tat att gta ggg gat gga aag tat gga gca tgg			1824
Phe Asp Phe Asp Leu Tyr Ile Val Gly Asp Gly Lys Tyr Gly Ala Trp			
595	600	605	
aaa aat ggg cac tgg act ggg cta gtg ggt gat ctc ctg aga ggg act			1872
Lys Asn Gly His Trp Thr Gly Leu Val Gly Asp Leu Leu Arg Gly Thr			
610	615	620	
gcc cac atg gca gtc act tcc ttt agc atc aat act gca cgg agc cag			1920
Ala His Met Ala Val Thr Ser Phe Ser Ile Asn Thr Ala Arg Ser Gln			
625	630	635	640
gtg ata gac ttc acc agc cct ttc tcc acc agc ttg ggc atc tta			1968
Val Ile Asp Phe Thr Ser Pro Phe Ser Thr Ser Leu Gly Ile Leu			
645	650	655	
gtg agg acc cga gat aca gca gct ccc att gga gcc ttc atg tgg cca			2016
Val Arg Thr Arg Asp Thr Ala Ala Pro Ile Gly Ala Phe Met Trp Pro			
660	665	670	
ctc cac tgg aca atg tgg ctg ggg att ttt gtg gct ctg cac atc act			2064
Leu His Trp Thr Met Trp Leu Gly Ile Phe Val Ala Leu His Ile Thr			
675	680	685	
gcc gtc ttc ctc act ctg tat gaa tgg aag agt cca ttt ggt ttg act			2112
Ala Val Phe Leu Thr Leu Tyr Glu Trp Lys Ser Pro Phe Gly Leu Thr			
690	695	700	
ccc aag ggg cga aat aga agt aaa gtc ttc tcc ttt tct tca gcc ttg			2160
Pro Lys Gly Arg Asn Arg Ser Lys Val Phe Ser Phe Ser Ser Ala Leu			
705	710	715	720
aac atc tgt tat gcc ctc ttg ttt ggc aga aca gtg gcc atc aaa cct			2208
Asn Ile Cys Tyr Ala Leu Leu Phe Gly Arg Thr Val Ala Ile Lys Pro			
725	730	735	
cca aaa tgt tgg act gga agg ttt cta atg aac ctt tgg gcc att ttc			2256
Pro Lys Cys Trp Thr Gly Arg Phe Leu Met Asn Leu Trp Ala Ile Phe			
740	745	750	
tgt atg ttt tgc ctt tcc aca tac acg gca aac ttg gct gct gtc atg			2304
Cys Met Phe Cys Leu Ser Thr Tyr Thr Ala Asn Leu Ala Ala Val Met			
755	760	765	
gta ggt gag aag atc tat gaa gag ctt tct gga ata cat gac ccc aag			2352
Val Gly Glu Lys Ile Tyr Glu Glu Leu Ser Gly Ile His Asp Pro Lys			
770	775	780	
tta cat cat cct tcc caa gga ttc cgc ttt gga act gtc cga gaa agc			2400
Leu His His Pro Ser Gln Gly Phe Arg Phe Gly Thr Val Arg Glu Ser			
785	790	795	800

agt gct gaa gat tat gtg aga caa agt ttc cca gag atg cat gaa tat		2448	
Ser Ala Glu Asp Tyr Val Arg Gln Ser Phe Pro Glu Met His Glu Tyr			
805	810	815	
atg aga agg tac aat gtt cca gcc acc cct gat gga gtg gag tat ctg		2496	
Met Arg Arg Tyr Asn Val Pro Ala Thr Pro Asp Gly Val Glu Tyr Leu			
820	825	830	
aag aat gat cca gag aaa cta gac gcc ttc atc atg gac aaa gcc ctt		2544	
Lys Asn Asp Pro Glu Lys Leu Asp Ala Phe Ile Met Asp Lys Ala Leu			
835	840	845	
ctg gat tat gaa gtg tca ata gat gct gac tgc aaa ctt ctc act gtg		2592	
Leu Asp Tyr Glu Val Ser Ile Asp Ala Asp Cys Lys Leu Leu Thr Val			
850	855	860	
ggg aag cca ttt gcc ata gaa gga tac ggc att ggc ctc cca ccc aac		2640	
Gly Lys Pro Phe Ala Ile Glu Gly Tyr Gly Ile Gly Leu Pro Pro Asn			
865	870	875	880
tct cca ttg acc gcc aac ata tcc gag cta atc agt caa tac aag tca		2688	
Ser Pro Leu Thr Ala Asn Ile Ser Glu Leu Ile Ser Gln Tyr Lys Ser			
885	890	895	
cat ggg ttt atg gat atg ctc cat gac aag tgg tac agg gtg gtt ccc		2736	
His Gly Phe Met Asp Met Leu His Asp Lys Trp Tyr Arg Val Val Pro			
900	905	910	
tgt ggc aag aga agt ttt gct gtc acg gag act ttg caa atg ggc atc		2784	
Cys Gly Lys Arg Ser Phe Ala Val Thr Glu Thr Leu Gln Met Gly Ile			
915	920	925	
aaa cac ttc tct ggg ctc ttt gtg ctg ctg tgc att gga ttt ggt ctg		2832	
Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly Phe Gly Leu			
930	935	940	
tcc att ttg acc acc att ggt gag cac ata gta tac agg ctg ctg cta		2880	
Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg Leu Leu Leu			
945	950	955	960
cca cga atc aaa aac aaa tcc aag ctg caa tac tgg ctc cac acc agc		2928	
Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu His Thr Ser			
965	970	975	
cag aga tta cac aga gca ata aat aca tca ttt ata gag gaa aag cag		2976	
Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu Glu Lys Gln			
980	985	990	
cag cat ttc aag acc aaa cgt gtg gaa aag agg tct aat gtg gga ccc		3024	
Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn Val Gly Pro			
995	1000	1005	
cgt cag ctt acc gta tgg aat act tcc aat ctg agt cat gac aac cga		3072	
Arg Gln Leu Thr Val Trp Asn Thr Ser Asn Leu Ser His Asp Asn Arg			
1010	1015	1020	
cgg aaa tac atc ttt agt gat gag gaa gga caa aac cag ctg ggc atc		3120	
Arg Lys Tyr Ile Phe Ser Asp Glu Glu Gly Gln Asn Gln Leu Gly Ile			
1025	1030	1035	1040
cag atc cac cag gac atc ccc ctc cct cca agg aga aga gag ctc cct		3168	

Gln Ile His Gln Asp Ile Pro Leu Pro Pro Arg Arg Arg Glu Leu Pro  
 1045 1050 1055  
 gcc ttg cgg acc acc aat ggg aaa gca gac tcc cta aat gta tct cgg 3216  
 Ala Leu Arg Thr Thr Asn Gly Lys Ala Asp Ser Leu Asn Val Ser Arg  
 1060 1065 1070  
 aac tca gtg atg cag gaa ctc tca gag ctc gag aag cag att cag gtg 3264  
 Asn Ser Val Met Gln Glu Leu Ser Glu Leu Glu Lys Gln Ile Gln Val  
 1075 1080 1085  
 atc cgt cag gag ctg cag ctg gct gtg agc agg aaa acg gag ctg gag 3312  
 Ile Arg Gln Glu Leu Gln Leu Ala Val Ser Arg Lys Thr Glu Leu Glu  
 1090 1095 1100  
 gag tat caa agg aca agt cgg act tgt gag tcc tag gtgaccacac 3358  
 Glu Tyr Gln Arg Thr Ser Arg Thr Cys Glu Ser \*  
 1105 1110 1115  
 tgctccctt tctcagttcc tgacccctt ctgagccctt gagacactt gtaatgctct 3418  
 tttgttaacta tcgacaaagg tgggggaag ctgaggtcta ggtcttcta aaggtaagt 3478  
 ctgcctctcc tcgcctaaag tgcagcagca gctcctctca agctcactct ctaggtctcc 3538  
 agggtaggag tggggctta gcaagaatct tagtcaggag taagctctgt gcgagagatc 3598  
 tgtgaataac cagataaccc cagctgccgt taacctttc accaggtgcc acagtaatat 3658  
 ttctggttt tagcccttcc tctgcactac caacaagaga taaaattgtt actcacactt 3718  
 atgtcttact gggttgtcgg tttcatcgt aacacagaac gaggttatct aggggtgttag 3778  
 ctttgatac aactccccga tctagattt ttcctacatt ctgaatgggg agcaggttaag 3838  
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 gtcaaggatt gattggacca ggcaagagcc atgaaaaatga gaaggttctg gatctctgac 3958  
 tccatcctga ctgttagta agagcatgct tacaccctac tgtaaaaagg ggaggggatg 4018  
 tggtaagcag aaacagaaga caggcagcag aggcattaaa aatgcatacc atgcttcag 4078  
 aacaaaagct ctggccaga aagcaattt ggctaaaaaa tgaataagac tacttcta 4138  
 gtaactaagc atctccacta tggtgtgtgc ctttataaa ggaaaaaaaaaaaaagg 4197

<210> 22  
 <211> 1115  
 <212> PRT  
 <213> Homo Sapiens

<400> 22

Met	Arg	Arg	Leu	Ser	Leu	Trp	Trp	Leu	Leu	Ser	Arg	Val	Cys	Leu	Leu
1															15
Leu	Pro	Pro	Pro	Cys	Ala	Leu	Val	Leu	Ala	Gly	Val	Pro	Ser	Ser	Ser
															30
Ser	His	Pro	Gln	Pro	Cys	Gln	Ile	Leu	Lys	Arg	Ile	Gly	His	Ala	Val
															45
Arg	Val	Gly	Ala	Val	His	Leu	Gln	Pro	Trp	Thr	Thr	Ala	Pro	Arg	Ala
															50
Ala	Ser	Arg	Ala	Pro	Asp	Asp	Ser	Arg	Ala	Gly	Ala	Gln	Arg	Asp	Glu
															65
Pro	Glu	Pro	Gly	Thr	Arg	Arg	Ser	Pro	Ala	Pro	Ser	Pro	Gly	Ala	Arg
															85
Trp	Leu	Gly	Ser	Thr	Leu	His	Gly	Arg	Gly	Pro	Pro	Gly	Ser	Arg	Lys
															100
Pro	Gly	Glu	Gly	Ala	Arg	Ala	Glu	Ala	Leu	Trp	Pro	Arg	Asp	Ala	Leu
															115
Leu	Phe	Ala	Val	Asp	Asn	Leu	Asn	Arg	Val	Glu	Gly	Leu	Leu	Pro	Tyr
															130
Asn	Leu	Ser	Leu	Glu	Val	Val	Met	Ala	Ile	Glu	Ala	Gly	Leu	Gly	Asp
															145
Leu	Pro	Leu	Leu	Pro	Phe	Ser	Ser	Pro	Ser	Ser	Pro	Trp	Ser	Ser	Asp
															165
															170
															175

Pro Phe Ser Phe Leu Gln Ser Val Cys His Thr Val Val Val Gln Gly  
     180                   185                   190  
 Val Ser Ala Leu Leu Ala Phe Pro Gln Ser Gln Gly Glu Met Met Glu  
     195                   200                   205  
 Leu Asp Leu Val Ser Leu Val Leu His Ile Pro Val Ile Ser Ile Val  
     210                   215                   220  
 Arg His Glu Phe Pro Arg Glu Ser Gln Asn Pro Leu His Leu Gln Leu  
     225                   230                   235                   240  
 Ser Leu Glu Asn Ser Leu Ser Ser Asp Ala Asp Val Thr Val Ser Ile  
     245                   250                   255  
 Leu Thr Met Asn Asn Trp Tyr Asn Phe Ser Leu Leu Leu Cys Gln Glu  
     260                   265                   270  
 Asp Trp Asn Ile Thr Asp Phe Leu Leu Leu Thr Gln Asn Asn Ser Lys  
     275                   280                   285  
 Phe His Leu Gly Ser Ile Ile Asn Ile Thr Ala Asn Leu Pro Ser Thr  
     290                   295                   300  
 Gln Asp Leu Leu Ser Phe Leu Gln Ile Gln Leu Glu Ser Ile Lys Asn  
     305                   310                   315                   320  
 Ser Thr Pro Thr Val Val Met Phe Gly Cys Asp Met Glu Ser Ile Arg  
     325                   330                   335  
 Arg Ile Phe Glu Ile Thr Thr Gln Phe Gly Val Met Pro Pro Glu Leu  
     340                   345                   350  
 Arg Trp Val Leu Gly Asp Ser Gln Asn Met Glu Glu Leu Arg Thr Glu  
     355                   360                   365  
 Gly Leu Pro Leu Gly Leu Ile Ala His Gly Lys Thr Thr Gln Ser Val  
     370                   375                   380  
 Phe Glu His Tyr Val Gln Asp Ala Met Glu Leu Val Ala Arg Ala Val  
     385                   390                   395                   400  
 Ala Thr Ala Thr Met Ile Gln Pro Glu Leu Ala Leu Ile Pro Ser Thr  
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 Met Asn Cys Met Glu Val Glu Thr Thr Asn Leu Thr Ser Gly Gln Tyr  
     420                   425                   430  
 Leu Ser Arg Phe Leu Ala Asn Thr Thr Phe Arg Gly Leu Ser Gly Ser  
     435                   440                   445  
 Ile Arg Val Lys Gly Ser Thr Ile Val Ser Ser Glu Asn Asn Phe Phe  
     450                   455                   460  
 Ile Trp Asn Leu Gln His Asp Pro Met Gly Lys Pro Met Trp Thr Arg  
     465                   470                   475                   480  
 Leu Gly Ser Trp Gln Gly Arg Lys Ile Val Met Asp Tyr Gly Ile Trp  
     485                   490                   495  
 Pro Glu Gln Ala Gln Arg His Lys Thr His Phe Gln His Pro Ser Lys  
     500                   505                   510  
 Leu His Leu Arg Val Val Thr Leu Ile Glu His Pro Phe Val Phe Thr  
     515                   520                   525  
 Arg Glu Val Asp Asp Glu Gly Leu Cys Pro Ala Gly Gln Leu Cys Leu  
     530                   535                   540  
 Asp Pro Met Thr Asn Asp Ser Ser Thr Leu Asp Ser Leu Phe Ser Ser  
     545                   550                   555                   560  
 Leu His Ser Ser Asn Asp Thr Val Pro Ile Lys Phe Lys Lys Cys Cys  
     565                   570                   575  
 Tyr Gly Tyr Cys Ile Asp Leu Leu Glu Lys Ile Ala Glu Asp Met Asn  
     580                   585                   590  
 Phe Asp Phe Asp Leu Tyr Ile Val Gly Asp Gly Lys Tyr Gly Ala Trp  
     595                   600                   605  
 Lys Asn Gly His Trp Thr Gly Leu Val Gly Asp Leu Leu Arg Gly Thr  
     610                   615                   620  
 Ala His Met Ala Val Thr Ser Phe Ser Ile Asn Thr Ala Arg Ser Gln  
     625                   630                   635                   640  
 Val Ile Asp Phe Thr Ser Pro Phe Phe Ser Thr Ser Leu Gly Ile Leu  
     645                   650                   655  
 Val Arg Thr Arg Asp Thr Ala Ala Pro Ile Gly Ala Phe Met Trp Pro  
     660                   665                   670

Leu His Trp Thr Met Trp Leu Gly Ile Phe Val Ala Leu His Ile Thr  
 675 680 685  
 Ala Val Phe Leu Thr Leu Tyr Glu Trp Lys Ser Pro Phe Gly Leu Thr  
 690 695 700  
 Pro Lys Gly Arg Asn Arg Ser Lys Val Phe Ser Phe Ser Ser Ala Leu  
 705 710 715 720  
 Asn Ile Cys Tyr Ala Leu Leu Phe Gly Arg Thr Val Ala Ile Lys Pro  
 725 730 735  
 Pro Lys Cys Trp Thr Gly Arg Phe Leu Met Asn Leu Trp Ala Ile Phe  
 740 745 750  
 Cys Met Phe Cys Leu Ser Thr Tyr Thr Ala Asn Leu Ala Ala Val Met  
 755 760 765  
 Val Gly Glu Lys Ile Tyr Glu Glu Leu Ser Gly Ile His Asp Pro Lys  
 770 775 780  
 Leu His His Pro Ser Gln Gly Phe Arg Phe Gly Thr Val Arg Glu Ser  
 785 790 795 800  
 Ser Ala Glu Asp Tyr Val Arg Gln Ser Phe Pro Glu Met His Glu Tyr  
 805 810 815  
 Met Arg Arg Tyr Asn Val Pro Ala Thr Pro Asp Gly Val Glu Tyr Leu  
 820 825 830  
 Lys Asn Asp Pro Glu Lys Leu Asp Ala Phe Ile Met Asp Lys Ala Leu  
 835 840 845  
 Leu Asp Tyr Glu Val Ser Ile Asp Ala Asp Cys Lys Leu Leu Thr Val  
 850 855 860  
 Gly Lys Pro Phe Ala Ile Glu Gly Tyr Gly Ile Gly Leu Pro Pro Asn  
 865 870 875 880  
 Ser Pro Leu Thr Ala Asn Ile Ser Glu Leu Ile Ser Gln Tyr Lys Ser  
 885 890 895  
 His Gly Phe Met Asp Met Leu His Asp Lys Trp Tyr Arg Val Val Pro  
 900 905 910  
 Cys Gly Lys Arg Ser Phe Ala Val Thr Glu Thr Leu Gln Met Gly Ile  
 915 920 925  
 Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly Phe Gly Leu  
 930 935 940  
 Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg Leu Leu Leu  
 945 950 955 960  
 Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu His Thr Ser  
 965 970 975  
 Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu Glu Lys Gln  
 980 985 990  
 Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn Val Gly Pro  
 995 1000 1005  
 Arg Gln Leu Thr Val Trp Asn Thr Ser Asn Leu Ser His Asp Asn Arg  
 1010 1015 1020  
 Arg Lys Tyr Ile Phe Ser Asp Glu Glu Gly Gln Asn Gln Leu Gly Ile  
 1025 1030 1035 1040  
 Gln Ile His Gln Asp Ile Pro Leu Pro Pro Arg Arg Arg Glu Leu Pro  
 1045 1050 1055  
 Ala Leu Arg Thr Thr Asn Gly Lys Ala Asp Ser Leu Asn Val Ser Arg  
 1060 1065 1070  
 Asn Ser Val Met Gln Glu Leu Ser Glu Leu Glu Lys Gln Ile Gln Val  
 1075 1080 1085  
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 1105 1110 1115

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 <212> DNA  
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<222> (184) ... (1830)

<221> misc\_feature  
<222> (1) ... (2561)  
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gctcgcatc caccactacc atgtaagggc catgagaagg gctcatcctg gcgcagcgcg 180  
gac atg gag gag gac tta ttc cag cta agg cag ctg ccg gtt gtg aaa 228  
Met Glu Glu Asp Leu Phe Gln Leu Arg Gln Leu Pro Val Val Lys  
1 5 10 15  
  
ttc cgt cgc aca ggc gag agt gca agg tca gag gac acg gct tca 276  
Phe Arg Arg Thr Gly Glu Ser Ala Arg Ser Glu Asp Asp Thr Ala Ser  
20 25 30  
  
gga gag cat gaa gtc cag att gaa ggg gtc cac gtg ggc cta gag gct 324  
Gly Glu His Glu Val Gln Ile Glu Gly Val His Val Gly Leu Glu Ala  
35 40 45  
  
gtg gag ctg gat gat ggg gca gct gtg ccc aag gag ttt gcc aat ccc 372  
Val Glu Leu Asp Asp Gly Ala Ala Val Pro Lys Glu Phe Ala Asn Pro  
50 55 60  
  
acc gat gat act ttc atg gtg gaa gat gca gtg gaa gcc att ggc ttt 420  
Thr Asp Asp Thr Phe Met Val Glu Asp Ala Val Glu Ala Ile Gly Phe  
65 70 75  
  
gga aaa ttt cag tgg aag ctg tct gtt ctc act ggc ttg gct tgg atg 468  
Gly Lys Phe Gln Trp Lys Leu Ser Val Leu Thr Gly Leu Ala Trp Met  
80 85 90 95  
  
gct gat gcc atg gag atg atc ctc agc atc ctg gca cca cag ctg 516  
Ala Asp Ala Met Glu Met Met Ile Leu Ser Ile Leu Ala Pro Gln Leu  
100 105 110  
  
cat tgc gag tgg agg ctc cca agc tgg cag gtg gca ttg ctg acc tcg 564  
His Cys Glu Trp Arg Leu Pro Ser Trp Gln Val Ala Leu Leu Thr Ser  
115 120 125  
  
gtg gtc ttt gta ggc atg atg tcc agc tcc acg ctc tgg gga aat atc 612  
Val Val Phe Val Gly Met Met Ser Ser Thr Leu Trp Gly Asn Ile  
130 135 140  
  
tca gac cag tac ggc agg aaa aca ggg ctg aag atc agc gtg ctg tgg 660  
Ser Asp Gln Tyr Gly Arg Lys Thr Gly Leu Lys Ile Ser Val Leu Trp  
145 150 155  
  
act ctg tac tat ggc atc ctt agt gca ttt gcg ccc gtg tat agc tgg 708  
Thr Leu Tyr Tyr Gly Ile Leu Ser Ala Phe Ala Pro Val Tyr Ser Trp  
160 165 170 175  
  
atc ctg gtg ctc cgg ggc ctg gtg ggc ttc ggg atc gga gga gtt ccc 756  
Ile Leu Val Leu Arg Gly Leu Val Gly Phe Gly Ile Gly Gly Val Pro  
180 185 190  
  
cag tcg gtg acg ctg tat gcc gag ttc ctt ccc atg aaa gcc aga gct 804

Gln Ser Val Thr Leu Tyr Ala Glu Phe Leu Pro Met Lys Ala Arg Ala			
195	200	205	
aaa tgt att ttg ctg att gag gta ttc tgg gcc atc ggg aca gtg ttc	852		
Lys Cys Ile Leu Leu Ile Glu Val Phe Trp Ala Ile Gly Thr Val Phe			
210	215	220	
gag gtc gtc ctg gct gtg ttc gtg atg ccc agc ctg ggc tgg cgt tgg	900		
Glu Val Val Leu Ala Val Phe Val Met Pro Ser Leu Gly Trp Arg Trp			
225	230	235	
ctg ctc atc ctc tca gct gtc ccg ctc ctc ttc gcc gtg ctg tgt	948		
Leu Leu Ile Leu Ser Ala Val Pro Leu Leu Leu Phe Ala Val Leu Cys			
240	245	250	255
ttc tgg ctg cct gaa agt gca agg tat gat gtg ctg tca ggg aac cag	996		
Phe Trp Leu Pro Glu Ser Ala Arg Tyr Asp Val Leu Ser Gly Asn Gln			
260	265	270	
gaa aag gca atc gcc acc tta aag agg ata gca act gaa aac gga gct	1044		
Glu Lys Ala Ile Ala Thr Leu Lys Arg Ile Ala Thr Glu Asn Gly Ala			
275	280	285	
ccc atg ccg ctg ggg aaa ctc atc atc tcc aga cag gaa gac cga ggc	1092		
Pro Met Pro Leu Gly Lys Leu Ile Ile Ser Arg Gln Glu Asp Arg Gly			
290	295	300	
aaa atg agg gac ctt ttc aca ccc cat ttt aga tgg aca act ttg ctg	1140		
Lys Met Arg Asp Leu Phe Thr Pro His Phe Arg Trp Thr Thr Leu Leu			
305	310	315	
ctg tgg ttt ata tgg ttt tcc aat gca ttc tct tac tac ggg tta gtt	1188		
Leu Trp Phe Ile Trp Phe Ser Asn Ala Phe Ser Tyr Tyr Gly Leu Val			
320	325	330	335
cta ctc acc aca gaa ctc ttc cag gca gga gat gtc tgc ggc atc tcc	1236		
Leu Leu Thr Thr Glu Leu Phe Gln Ala Gly Asp Val Cys Gly Ile Ser			
340	345	350	
agt cgg aag aag gct gta gag gca aaa tgc agc ctg gcc tgc gag tac	1284		
Ser Arg Lys Lys Ala Val Glu Ala Lys Cys Ser Leu Ala Cys Glu Tyr			
355	360	365	
ctg agt gag gag gat tac atg gac ttg ctg tgg acc acc ctc tct gag	1332		
Leu Ser Glu Glu Asp Tyr Met Asp Leu Leu Trp Thr Thr Leu Ser Glu			
370	375	380	
ttt cca ggt gtc ctt gtg act ctg tgg att att gac cgc ctg ggg cgc	1380		
Phe Pro Gly Val Leu Val Thr Leu Trp Ile Ile Asp Arg Leu Gly Arg			
385	390	395	
aag aag acc atg gcc ctg tgc ttt gtc atc ttc tcc ttc tgc agc ctc	1428		
Lys Lys Thr Met Ala Leu Cys Phe Val Ile Phe Ser Phe Cys Ser Leu			
400	405	410	415
ctg ctg ttt atc tgt gtt gga aga aat gtg ctc act ctg tta ctc ttc	1476		
Leu Leu Phe Ile Cys Val Gly Arg Asn Val Leu Thr Leu Leu Phe			
420	425	430	
att gca aga gcg ttt att tct gga ggc ttt caa gcg gca tat gtt tac	1524		
Ile Ala Arg Ala Phe Ile Ser Gly Gly Phe Gln Ala Ala Tyr Val Tyr			
435	440	445	

aca cct gag gtc tac ccc acg gca acg cg <sup>g</sup> gcc ctc ggc ctg ggc acc	1572																																																																										
Thr Pro Glu Val Tyr Pro Thr Ala Thr Arg Ala Leu Gly Leu Gly Thr																																																																											
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Cys Ser Gly Met Ala Arg Val Gly Ala Leu Ile Thr Pro Phe Ile Ala																																																																											
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Gln Val Met Leu Glu Ser Ser Val Tyr Leu Thr Leu Ala Val Tyr Ser																																																																											
480	485		490		495	ggc tgc tgc ctc ctg gct gcc ctg gcc tcc tgc ttt ttg ccc att gag	1716	Gly Cys Cys Leu Leu Ala Ala Leu Ala Ser Cys Phe Leu Pro Ile Glu		500	505		510	acc aaa ggc gga gga ctg cag gag tcc agc cac cgg gag tgg ggc cag	1764	Thr Lys Gly Gly Leu Gln Glu Ser Ser His Arg Glu Trp Gly Gln		515	520		525	gag atg gtc ggc cga gga atg cac ggt gca ggt gtt acc agg tcg aac	1812	Glu Met Val Gly Arg Gly Met His Gly Ala Gly Val Thr Arg Ser Asn		530	535		540	tct ggc tct cag gaa tag tgaccgatgg gggactgagc tggctttga	1860	Ser Gly Ser Gln Glu *		545		ggctgcagag cttggggggc tggcaggccc caactggggc actgattgtc actgccgaca	1920	tcaagaactc acccaagagt atgacctgga ccaacagggt tttgtgtctt gactcagttt	1980	gctcatcttc attgaggtcc acccaggat gggagatgt ttgctctagg ggttctctg	2040	tatatgttgt gaaagcttg ttcataacct gtggatctac atggaaagac taccatatt	2100	aggagggtct ggtaatgcc acaaccaatc agacaccacc cagagtcaacc cggccaaacc	2160	ctcagtgaac aacccaaata tctctctgta gataccgtcc aggctcaggc ccatgtgaca	2220	cctgctgtcc acccaccgga cctgttcagt aggttctcc cacacccaca gccccaggct	2280	ttcttctttg aaattgcagg cgatctaggt gtggctgag cagctatttc ctggcagggg	2340	ccccccggtt tgcctcccta gagcctgacc agtggattct ctggcagatg gacatggtc	2400	attcaaactg gagccacatg cccccaccca gcccctntt gagttgccc ttgtggcac	2460	caagagatcc agatgtgtcc tggggacagc tgggtcttgc accaggtgac aaccta	2520	cgccgttacc ccctgggaa ctgaggactg agngccaagt g	2561																
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Glu Leu Asp Asp Gly Ala Ala Val Pro Lys Glu Phe Ala Asn Pro Thr			
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 Ser Val Thr Leu Tyr Ala Glu Phe Leu Pro Met Lys Ala Arg Ala Lys  
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 Cys Ile Leu Leu Ile Glu Val Phe Trp Ala Ile Gly Thr Val Phe Glu  
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 Val Val Leu Ala Val Phe Val Met Pro Ser Leu Gly Trp Arg Trp Leu  
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 Met Pro Leu Gly Lys Leu Ile Ile Ser Arg Gln Glu Asp Arg Gly Lys  
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 Arg Lys Lys Ala Val Glu Ala Lys Cys Ser Leu Ala Cys Glu Tyr Leu  
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 Ser Glu Glu Asp Tyr Met Asp Leu Leu Trp Thr Thr Leu Ser Glu Phe  
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 Pro Gly Val Leu Val Thr Leu Trp Ile Ile Asp Arg Leu Gly Arg Lys  
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 Lys Thr Met Ala Leu Cys Phe Val Ile Phe Ser Phe Cys Ser Leu Leu  
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 Val Met Leu Glu Ser Ser Val Tyr Leu Thr Leu Ala Val Tyr Ser Gly  
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Met Asn Asp Thr  
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Glu Lys Pro Ala Asp Thr Pro Ser Glu Glu Asp Phe Gly Asp Pro  
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Arg Thr Tyr Asp Pro Asp Phe Lys Gly Pro Val Ala Asn Arg Ser Cys  
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Thr Asp Val Leu Cys Cys Met Ile Phe Leu Leu Cys Ile Ile Gly Tyr  
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Ile Val Leu Gly Leu Val Ala Trp Val His Gly Asp Pro Arg Arg Ala  
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gcc tat cct aca gac agc cag ggc cac ttt tgt ggc cag aag ggc act 356  
Ala Tyr Pro Thr Asp Ser Gln Gly His Phe Cys Gly Gln Lys Gly Thr  
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Pro Asn Glu Asn Lys Thr Ile Leu Phe Tyr Phe Asn Leu Leu Arg Cys  
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Thr Ser Pro Ser Val Leu Leu Asn Leu Gln Cys Pro Thr Thr Gln Ile  
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Cys Val Ser Lys Cys Pro Glu Lys Phe Leu Thr Tyr Val Glu Met Gln  
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ctt ttg tac aca aaa gac aaa agc tac tgg gaa gac tac cgt cag ttc 548  
Leu Leu Tyr Thr Lys Asp Lys Ser Tyr Trp Glu Asp Tyr Arg Gln Phe  
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Ser Lys Met Met Phe Gln Asp Gly Asn Gly Gly Thr Arg Ser Val Val  
200 205 210

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tgg ttc aca ttt atg ata ata ctc tgc atc att gaa gtg att gtc atc Trp Phe Thr Phe Met Ile Ile Leu Cys Ile Ile Glu Val Ile Val Ile 325	330	335	1124
ctc atg ctg atc ttc ctc agg aat cga atc cga gtc gcc att atc ctg Leu Met Leu Ile Phe Leu Arg Asn Arg Ile Arg Val Ala Ile Ile Leu 345	350	355	1172
ctg aag gaa gga agc aaa gcc att gga tat gtt cct agt aca tta gtc Leu Lys Glu Gly Ser Lys Ala Ile Gly Tyr Val Pro Ser Thr Leu Val 360	365	370	1220
tat cca gct tta act ttc att ttg ctc tca atc tgc att tgc tac tgg Tyr Pro Ala Leu Thr Phe Ile Leu Leu Ser Ile Cys Ile Cys Tyr Trp 375	380	385	1268
gtc gtg aca gca gtt ttc ttg gcg aca tcg ggg gta cct gta tac aaa Val Val Thr Ala Val Phe Leu Ala Thr Ser Gly Val Pro Val Tyr Lys 390	395	400	1316
gtc ata gct cca ggg ggg cat tgt ata cat gaa aat caa acc tgt gac Val Ile Ala Pro Gly Gly His Cys Ile His Glu Asn Gln Thr Cys Asp 405	410	415	1364
cca gag att ttt aat aca act gaa att gcc aaa gct tgc cct ggg gct Pro Glu Ile Phe Asn Thr Thr Glu Ile Ala Lys Ala Cys Pro Gly Ala 425	430	435	1412
ctg tgt aac ttt gct ttc tat ggt gga aag agc ttg tac cat cag tac Leu Cys Asn Phe Ala Phe Tyr Gly Gly Lys Ser Leu Tyr His Gln Tyr 440	445	450	1460
atc cct acc ttc cat gta tac aac tta ttt gtc ttt ctc tgg ctt ata			1508

Ile Pro Thr Phe His Val Tyr Asn Leu Phe Val Phe Leu Trp Leu Ile			
455	460	465	
aac ttc gtc att gca tta ggt cag tgc gcc ctt gct ggt gca ttc gct		1556	
Asn Phe Val Ile Ala Leu Gly Gln Cys Ala Leu Ala Gly Ala Phe Ala			
470	475	480	
act tat tac tgg gcc atg aaa aaa cct gat gac atc cca cga tat cca		1604	
Thr Tyr Tyr Trp Ala Met Lys Lys Pro Asp Asp Ile Pro Arg Tyr Pro			
485	490	495	500
ctt ttt act gca ttt gga cga gcc ata cga tat cac aca gga tcc cta		1652	
Leu Phe Thr Ala Phe Gly Arg Ala Ile Arg Tyr His Thr Gly Ser Leu			
505	510	515	
gca ttt gga tct tta att att gca tta att caa atg ttt aaa att gta		1700	
Ala Phe Gly Ser Leu Ile Ile Ala Leu Ile Gln Met Phe Lys Ile Val			
520	525	530	
cta gaa tac ttg gac cac cgt ctt aaa cgt acc cag aac aca ttg tct		1748	
Leu Glu Tyr Leu Asp His Arg Leu Lys Arg Thr Gln Asn Thr Leu Ser			
535	540	545	
aaa ttc cta cag tgc tgc ctg aga tgc tgc ttc tgg tgt ttg gaa aat		1796	
Lys Phe Leu Gln Cys Cys Leu Arg Cys Cys Phe Trp Cys Leu Glu Asn			
550	555	560	
gca ata aag ttt tta aac aga aat gcc tat att atg att gca ata tat		1844	
Ala Ile Lys Phe Leu Asn Arg Asn Ala Tyr Ile Met Ile Ala Ile Tyr			
565	570	575	580
ggc aga aac ttc tgc agg tca gca aaa gat gct ttc aat ctg ctg atg		1892	
Gly Arg Asn Phe Cys Arg Ser Ala Lys Asp Ala Phe Asn Leu Leu Met			
585	590	595	
aga aat gtt ttg aaa gtt gca gtt aca gat gaa gtt aca tac ttt gta		1940	
Arg Asn Val Leu Lys Val Ala Val Thr Asp Glu Val Thr Tyr Phe Val			
600	605	610	
tta ttc ctg ggg aaa ctt cta gtt gct gga agt ata ggt gtt ctg gcc		1988	
Leu Phe Leu Gly Lys Leu Leu Val Ala Gly Ser Ile Gly Val Leu Ala			
615	620	625	
ttc cta ttc ttc aca caa aga ctg cca gtg att gca caa gga cca gca		2036	
Phe Leu Phe Phe Thr Gln Arg Leu Pro Val Ile Ala Gln Gly Pro Ala			
630	635	640	
tct tta aat tac tac tgg gta cct ttg ctg aca gtc att ttt ggg tct		2084	
Ser Leu Asn Tyr Tyr Trp Val Pro Leu Leu Thr Val Ile Phe Gly Ser			
645	650	655	660
tac ctg att gca cat ggg ttc ttc agc gtc tat gca atg tgt gtt gaa		2132	
Tyr Leu Ile Ala His Gly Phe Phe Ser Val Tyr Ala Met Cys Val Glu			
665	670	675	
aca att ttc atc tgc ttc ttg gaa gat tta gaa aga aat gat ggt tct		2180	
Thr Ile Phe Ile Cys Phe Leu Glu Asp Leu Glu Arg Asn Asp Gly Ser			
680	685	690	
act gca aga cct tat tat gtg agt caa cct ttg ctg aag att ttc cag		2228	
Thr Ala Arg Pro Tyr Tyr Val Ser Gln Pro Leu Leu Lys Ile Phe Gln			
695	700	705	

gag gaa aat cca caa act agg aag cag tag aagagcaaac tggtcgtcct 2278  
Glu Glu Asn Pro Gln Thr Arg Lys Gln \*  
710 715

acagctgtgt gttacctttt ctccatctgc tggctgtgtg caacatttg ttcataagtg 2338  
ctttgtgttt agcaacactg tattcacgac cttgtggct tgcatttgcg tggttatac 2398  
caaagcttat actgtactat gtgaagccat cagaagtcgc aaggaaattt ttaataacat 2458  
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<212> PRT  
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Phe Gly Asp Pro Arg Thr Tyr Asp Pro Asp Phe Lys Gly Pro Val Ala  
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Asn Arg Ser Cys Thr Asp Val Leu Cys Cys Met Ile Phe Leu Leu Cys  
35 40 45  
Ile Ile Gly Tyr Ile Val Leu Gly Leu Val Ala Trp Val His Gly Asp  
50 55 60  
Pro Arg Arg Ala Ala Tyr Pro Thr Asp Ser Gln Gly His Phe Cys Gly  
65 70 75 80  
Gln Lys Gly Thr Pro Asn Glu Asn Lys Thr Ile Leu Phe Tyr Phe Asn  
85 90 95  
Leu Leu Arg Cys Thr Ser Pro Ser Val Leu Leu Asn Leu Gln Cys Pro  
100 105 110  
Thr Thr Gln Ile Cys Val Ser Lys Cys Pro Glu Lys Phe Leu Thr Tyr  
115 120 125  
Val Glu Met Gln Leu Leu Tyr Thr Lys Asp Lys Ser Tyr Trp Glu Asp  
130 135 140  
Tyr Arg Gln Phe Cys Lys Thr Thr Ala Lys Pro Val Lys Ser Leu Thr  
145 150 155 160  
Gln Leu Leu Leu Asp Asp Asp Cys Pro Thr Ala Ile Phe Pro Ser Lys  
165 170 175  
Pro Phe Leu Gln Arg Cys Phe Pro Asp Phe Ser Thr Lys Asn Gly Thr  
180 185 190  
Leu Thr Ile Gly Ser Lys Met Met Phe Gln Asp Gly Asn Gly Gly Thr  
195 200 205  
Arg Ser Val Val Glu Leu Gly Ile Ala Ala Asn Gly Ile Asn Lys Leu  
210 215 220  
Leu Asp Ala Lys Ser Leu Gly Leu Lys Val Phe Glu Asp Tyr Ala Arg  
225 230 235 240  
Thr Trp Tyr Trp Ile Leu Ile Gly Leu Thr Ile Ala Met Val Leu Ser  
245 250 255  
Trp Ile Phe Leu Ile Leu Leu Arg Phe Ile Ala Gly Cys Leu Phe Trp  
260 265 270  
Val Phe Met Ile Gly Val Ile Gly Ile Ile Gly Tyr Gly Ile Trp His  
275 280 285  
Cys Tyr Gln Gln Tyr Thr Asn Leu Gln Glu Arg Pro Ser Ser Val Leu  
290 295 300  
Thr Ile Tyr Asp Ile Gly Ile Gln Thr Asn Ile Ser Met Tyr Phe Glu  
305 310 315 320  
Leu Gln Gln Thr Trp Phe Thr Phe Met Ile Ile Leu Cys Ile Ile Glu  
325 330 335  
Val Ile Val Ile Leu Met Leu Ile Phe Leu Arg Asn Arg Ile Arg Val  
340 345 350  
Ala Ile Ile Leu Leu Lys Glu Gly Ser Lys Ala Ile Gly Tyr Val Pro  
355 360 365

Ser Thr Leu Val Tyr Pro Ala Leu Thr Phe Ile Leu Leu Ser Ile Cys  
 370 375 380  
 Ile Cys Tyr Trp Val Val Thr Ala Val Phe Leu Ala Thr Ser Gly Val  
 385 390 395 400  
 Pro Val Tyr Lys Val Ile Ala Pro Gly Gly His Cys Ile His Glu Asn  
 405 410 415  
 Gln Thr Cys Asp Pro Glu Ile Phe Asn Thr Thr Glu Ile Ala Lys Ala  
 420 425 430  
 Cys Pro Gly Ala Leu Cys Asn Phe Ala Phe Tyr Gly Gly Lys Ser Leu  
 435 440 445  
 Tyr His Gln Tyr Ile Pro Thr Phe His Val Tyr Asn Leu Phe Val Phe  
 450 455 460  
 Leu Trp Leu Ile Asn Phe Val Ile Ala Leu Gly Gln Cys Ala Leu Ala  
 465 470 475 480  
 Gly Ala Phe Ala Thr Tyr Tyr Trp Ala Met Lys Lys Pro Asp Asp Ile  
 485 490 495  
 Pro Arg Tyr Pro Leu Phe Thr Ala Phe Gly Arg Ala Ile Arg Tyr His  
 500 505 510  
 Thr Gly Ser Leu Ala Phe Gly Ser Leu Ile Ile Ala Leu Ile Gln Met  
 515 520 525  
 Phe Lys Ile Val Leu Glu Tyr Leu Asp His Arg Leu Lys Arg Thr Gln  
 530 535 540  
 Asn Thr Leu Ser Lys Phe Leu Gln Cys Cys Leu Arg Cys Cys Phe Trp  
 545 550 555 560  
 Cys Leu Glu Asn Ala Ile Lys Phe Leu Asn Arg Asn Ala Tyr Ile Met  
 565 570 575  
 Ile Ala Ile Tyr Gly Arg Asn Phe Cys Arg Ser Ala Lys Asp Ala Phe  
 580 585 590  
 Asn Leu Leu Met Arg Asn Val Leu Lys Val Ala Val Thr Asp Glu Val  
 595 600 605  
 Thr Tyr Phe Val Leu Phe Leu Gly Lys Leu Leu Val Ala Gly Ser Ile  
 610 615 620  
 Gly Val Leu Ala Phe Leu Phe Phe Thr Gln Arg Leu Pro Val Ile Ala  
 625 630 635 640  
 Gln Gly Pro Ala Ser Leu Asn Tyr Tyr Trp Val Pro Leu Leu Thr Val  
 645 650 655  
 Ile Phe Gly Ser Tyr Leu Ile Ala His Gly Phe Phe Ser Val Tyr Ala  
 660 665 670  
 Met Cys Val Glu Thr Ile Phe Ile Cys Phe Leu Glu Asp Leu Glu Arg  
 675 680 685  
 Asn Asp Gly Ser Thr Ala Arg Pro Tyr Tyr Val Ser Gln Pro Leu Leu  
 690 695 700  
 Lys Ile Phe Gln Glu Glu Asn Pro Gln Thr Arg Lys Gln  
 705 710 715

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 <212> DNA  
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<220>  
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<400> 27  
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 Met Gly Ser Val Gly Ser Gln  
 1 5

cgc ctt gag gag ccc agc gtg gca ggc aca cca gac ccg ggc gta gtg 102  
 Arg Leu Glu Glu Pro Ser Val Ala Gly Thr Pro Asp Pro Gly Val Val

10	15	20	
atg agc ttc acc ttc gac agt cac cag ctg gag gag gcg gcg gag gcg			150
Met Ser Phe Thr Phe Asp Ser His Gln Leu Glu Glu Ala Ala Glu Ala			
25	30	35	
gct cag ggc cag ggc ctt agg gcc agg ggc gtc cca gct ttc acg gat			198
Ala Gln Gly Gln Gly Leu Arg Ala Arg Gly Val Pro Ala Phe Thr Asp			
40	45	50	55
act aca ttg gac gag cca gtg ccc gat gac cgt tat cac gcc atc tac			246
Thr Thr Leu Asp Glu Pro Val Pro Asp Asp Arg Tyr His Ala Ile Tyr			
60	65	70	
ttt gcg atg ctg ctg gct ggc gtg ggc ttc ctg ctg cca tac aac agc			294
Phe Ala Met Leu Leu Ala Gly Val Gly Phe Leu Leu Pro Tyr Asn Ser			
75	80	85	
ttc atc acg gac gtg gac tac ctg cat cac aag tac cca ggg acc tcc			342
Phe Ile Thr Asp Val Asp Tyr Leu His His Lys Tyr Pro Gly Thr Ser			
90	95	100	
atc gtg ttt gac atg agc ctc acc tac atc ttg gtg gca ctg gca gct			390
Ile Val Phe Asp Met Ser Leu Thr Tyr Ile Leu Val Ala Leu Ala Ala			
105	110	115	
gtc ctc ctg aac aac gtc ctg gtg gag aga ctg acc ctg cac acc agg			438
Val Leu Leu Asn Asn Val Leu Val Glu Arg Leu Thr Leu His Thr Arg			
120	125	130	135
atc acc gca ggc tac ctc tta gcc ttg ggc cct ctc ctt ttt atc agc			486
Ile Thr Ala Gly Tyr Leu Leu Ala Leu Gly Pro Leu Leu Phe Ile Ser			
140	145	150	
atc tgc gac gtg tgg ctg cag ctc ttc tct cgg gac cag gcc tac gcc			534
Ile Cys Asp Val Trp Leu Gln Leu Phe Ser Arg Asp Gln Ala Tyr Ala			
155	160	165	
atc aac ctg gcc gct gtg ggc acc gtg gcc ttc ggc tgc aca gtg cag			582
Ile Asn Leu Ala Ala Val Gly Thr Val Ala Phe Gly Cys Thr Val Gln			
170	175	180	
caa tcc agc ttc tac ggg tac acg ggg atg ctg ccc aag cgg tac acg			630
Gln Ser Ser Phe Tyr Gly Tyr Thr Gly Met Leu Pro Lys Arg Tyr Thr			
185	190	195	
cag ggg gtg atg acc ggg gag agc acg gcg ggc gtg atg atc tct ctg			678
Gln Gly Val Met Thr Gly Glu Ser Thr Ala Gly Val Met Ile Ser Leu			
200	205	210	215
agc cgc atc ctc acg aag ctg ctg ccc gac gag cgc gcc agc acg			726
Ser Arg Ile Leu Thr Lys Leu Leu Pro Asp Glu Arg Ala Ser Thr			
220	225	230	
ctc atc ttc ttc ctg gtg tcg gtg gcg ctg gag ctg ctg tgt ttc ctg			774
Leu Ile Phe Phe Leu Val Ser Val Ala Leu Glu Leu Leu Cys Phe Leu			
235	240	245	
ctg cac ctg tta gtg cgg cgc agc cgc ttc gtg ctc ttc tat acc aca			822
Leu His Leu Leu Val Arg Arg Ser Arg Phe Val Leu Phe Tyr Thr Thr			
250	255	260	

ccg ccg cgt gac agc cac ccg ggc agg cca ggc ctg ggc agg ggc tat	870
Arg Pro Arg Asp Ser His Arg Gly Arg Pro Gly Leu Gly Arg Gly Tyr	
265 270 275	
ggc tac cgc gtg cac cac gac gtt gtc gcc ggg gac gtc cac ttc gag	918
Gly Tyr Arg Val His His Asp Val Val Ala Gly Asp Val His Phe Glu	
280 285 290 295	
cac cca gcc ccg gcc ctg gcc ccc aac gag tcc cca aag gac agc cca	966
His Pro Ala Pro Ala Leu Ala Pro Asn Glu Ser Pro Lys Asp Ser Pro	
300 305 310	
gcc cac gag gtg acc ggc agc ggc ggg gcc tac atg cgc ttt gac gtg	1014
Ala His Glu Val Thr Gly Ser Gly Ala Tyr Met Arg Phe Asp Val	
315 320 325	
ccg ccg cca agg gtc cag cgc agc tgg ccc acc ttc aga gcc ctg tta	1062
Pro Arg Pro Arg Val Gln Arg Ser Trp Pro Thr Phe Arg Ala Leu Leu	
330 335 340	
ctg cac cgc tac gtg gtg gcg cgg gtg atc tgg gcc gac atg ctc tcc	1110
Leu His Arg Tyr Val Val Ala Arg Val Ile Trp Ala Asp Met Leu Ser	
345 350 355	
atc gcc gtg acc tac ttc atc acg ctg tgc ctg ttc ccc ggc ctc gag	1158
Ile Ala Val Thr Tyr Phe Ile Thr Leu Cys Leu Phe Pro Gly Leu Glu	
360 365 370 375	
tct gag atc cgc cac tgc atc ctg ggc gag tgg ctg ccc atc ctc atc	1206
Ser Glu Ile Arg His Cys Ile Leu Gly Glu Trp Leu Pro Ile Leu Ile	
380 385 390	
atg gct gtg ttc aac ctg tca gac ttc gtg ggc aag atc ctg gca gcc	1254
Met Ala Val Phe Asn Leu Ser Asp Phe Val Gly Lys Ile Leu Ala Ala	
395 400 405	
ctg ccc gtg gac tgg cgg ggc acc cac ctg ctg gcc tgc tcc tgc ctg	1302
Leu Pro Val Asp Trp Arg Gly Thr His Leu Leu Ala Cys Ser Cys Leu	
410 415 420	
cgt gtg gtc ttc atc ccc ctc ttc atc ctg tgc gtc tac ccc agc ggc	1350
Arg Val Val Phe Ile Pro Leu Phe Ile Leu Cys Val Tyr Pro Ser Gly	
425 430 435	
atg ccc gcc ctc cgt cac ccc gcc tgg ccc tgc atc ttc tca ctg ctc	1398
Met Pro Ala Leu Arg His Pro Ala Trp Pro Cys Ile Phe Ser Leu Leu	
440 445 450 455	
atg ggc atc agc aac ggc tac ttc ggc agc gtg ccc atg atc ctg gcg	1446
Met Gly Ile Ser Asn Gly Tyr Phe Gly Ser Val Pro Met Ile Leu Ala	
460 465 470	
gca ggc aaa gtg agc ccc aag cag cgg gag ctg gca ggg aac acc atg	1494
Ala Gly Lys Val Ser Pro Lys Gln Arg Glu Leu Ala Gly Asn Thr Met	
475 480 485	
acc gtg tcc tac atg tca ggg ctg acg ctg ggg tcc gcc gtg gcc tac	1542
Thr Val Ser Tyr Met Ser Gly Leu Thr Leu Gly Ser Ala Val Ala Tyr	
490 495 500	
tgc acc tac agc ctc acc cgc gac gct cac ggc agc tgc ctg cac gcc	1590
Cys Thr Tyr Ser Leu Thr Arg Asp Ala His Gly Ser Cys Leu His Ala	

505

510

515

tcc acc gcc aat ggt tcc atc ctc gca ggc ctc tga gccagccccg	1636
Ser Thr Ala Asn Gly Ser Ile Leu Ala Gly Leu *	
520 525 530	

cccaactgcca gggacgcgca gggcctgacc agggggcccg aggctgagg gcccctcccc 1696	
tgtccccacc tcagtgcctg cggggccctg agcctccccc tgcgcagca gccccactcc 1756	
ctcagggtcc agccatgccc caccctggac tgaagttctg caaagtccctc cgaggaccgg 1816	
aacacgtttc tgccgaccgg ggctctggcc agcaactgtgt tctgcgtttg gtctcatacc 1876	
tgcgtctacc ttccatctgt gtcagcggc cccggctcca gcccagccag cactctgcag 1936	
ggtcacacgc accgtgtccc caccaggac agcagacacc cgccagagtg tgcgcgccc 1996	
gtgactgcac cccggccctc atcacccacc ggcactgatc ggggcaccgc ctggcccagc 2056	
ctccaccagg gaccctcct catgaactct ggagccctga gaggagaggg gcagcccccc 2116	
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tgcatcagcc tctggaaac cacagcgtg atgccagctg ggcacgtcag gacctccca 2296	
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caccctggct gaagtcaagt tgaccttagt cttgaccctc atccagcaag ggactcgaca 2476	
gacccaaggg tccctggaaac gtagggaggg gctgggggtc actccagccc gggcctccca 2536	
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&lt;211&gt; 530

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 28

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Thr Pro Asp Pro Gly Val Val Met Ser Phe Thr Phe Asp Ser His Gln	
20 25 30	
Leu Glu Glu Ala Ala Glu Ala Ala Gln Gly Gln Gly Leu Arg Ala Arg	
35 40 45	
Gly Val Pro Ala Phe Thr Asp Thr Thr Leu Asp Glu Pro Val Pro Asp	
50 55 60	
Asp Arg Tyr His Ala Ile Tyr Phe Ala Met Leu Leu Ala Gly Val Gly	
65 70 75 80	
Phe Leu Leu Pro Tyr Asn Ser Phe Ile Thr Asp Val Asp Tyr Leu His	
85 90 95	
His Lys Tyr Pro Gly Thr Ser Ile Val Phe Asp Met Ser Leu Thr Tyr	
100 105 110	
Ile Leu Val Ala Leu Ala Ala Val Leu Leu Asn Asn Val Leu Val Glu	
115 120 125	
Arg Leu Thr Leu His Thr Arg Ile Thr Ala Gly Tyr Leu Leu Ala Leu	
130 135 140	
Gly Pro Leu Leu Phe Ile Ser Ile Cys Asp Val Trp Leu Gln Leu Phe	
145 150 155 160	
Ser Arg Asp Gln Ala Tyr Ala Ile Asn Leu Ala Ala Val Gly Thr Val	
165 170 175	
Ala Phe Gly Cys Thr Val Gln Gln Ser Ser Phe Tyr Gly Tyr Thr Gly	
180 185 190	
Met Leu Pro Lys Arg Tyr Thr Gln Gly Val Met Thr Gly Glu Ser Thr	
195 200 205	
Ala Gly Val Met Ile Ser Leu Ser Arg Ile Leu Thr Lys Leu Leu Leu	
210 215 220	
Pro Asp Glu Arg Ala Ser Thr Leu Ile Phe Phe Leu Val Ser Val Ala	
225 230 235 240	

Leu Glu Leu Leu Cys Phe Leu Leu His Leu Leu Val Arg Arg Ser Arg  
 245 250 255  
 Phe Val Leu Phe Tyr Thr Thr Arg Pro Arg Asp Ser His Arg Gly Arg  
 260 265 270  
 Pro Gly Leu Gly Arg Gly Tyr Gly Tyr Arg Val His His Asp Val Val  
 275 280 285  
 Ala Gly Asp Val His Phe Glu His Pro Ala Pro Ala Leu Ala Pro Asn  
 290 295 300  
 Glu Ser Pro Lys Asp Ser Pro Ala His Glu Val Thr Gly Ser Gly Gly  
 305 310 315 320  
 Ala Tyr Met Arg Phe Asp Val Pro Arg Pro Arg Val Gln Arg Ser Trp  
 325 330 335  
 Pro Thr Phe Arg Ala Leu Leu Leu His Arg Tyr Val Val Ala Arg Val  
 340 345 350  
 Ile Trp Ala Asp Met Leu Ser Ile Ala Val Thr Tyr Phe Ile Thr Leu  
 355 360 365  
 Cys Leu Phe Pro Gly Leu Glu Ser Glu Ile Arg His Cys Ile Leu Gly  
 370 375 380  
 Glu Trp Leu Pro Ile Leu Ile Met Ala Val Phe Asn Leu Ser Asp Phe  
 385 390 395 400  
 Val Gly Lys Ile Leu Ala Ala Leu Pro Val Asp Trp Arg Gly Thr His  
 405 410 415  
 Leu Leu Ala Cys Ser Cys Leu Arg Val Val Phe Ile Pro Leu Phe Ile  
 420 425 430  
 Leu Cys Val Tyr Pro Ser Gly Met Pro Ala Leu Arg His Pro Ala Trp  
 435 440 445  
 Pro Cys Ile Phe Ser Leu Leu Met Gly Ile Ser Asn Gly Tyr Phe Gly  
 450 455 460  
 Ser Val Pro Met Ile Leu Ala Ala Gly Lys Val Ser Pro Lys Gln Arg  
 465 470 475 480  
 Glu Leu Ala Gly Asn Thr Met Thr Val Ser Tyr Met Ser Gly Leu Thr  
 485 490 495  
 Leu Gly Ser Ala Val Ala Tyr Cys Thr Tyr Ser Leu Thr Arg Asp Ala  
 500 505 510  
 His Gly Ser Cys Leu His Ala Ser Thr Ala Asn Gly Ser Ile Leu Ala  
 515 520 525  
 Gly Leu  
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 <212> DNA  
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 <222> (56)...(688)

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 Met  
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 Ala Lys Leu Arg Val Ala Tyr Glu Tyr Thr Glu Ala Glu Asp Lys Ser  
 5 10 15

atc cgg ctc ggc ttg ttt ctc atc atc tcc ggc gtc gtg tcg ctc ttc 154  
 Ile Arg Leu Gly Leu Phe Leu Ile Ile Ser Gly Val Val Ser Leu Phe  
 20 25 30

atc ttc ggc ttc tgc tgg ctg agt ccc gcg ctg cag gat ctg caa gcc	202		
Ile Phe Gly Phe Cys Trp Leu Ser Pro Ala Leu Gln Asp Leu Gln Ala			
35	40	45	
acg gag gcc aat tgc acg gtg ctg tcg cag cag atc ggc gag gtg	250		
Thr Glu Ala Asn Cys Thr Val Leu Ser Val Gln Gln Ile Gly Glu Val			
50	55	60	65
ttc gag tgc acc ttc acc tgt ggc gcc gac tgc agg ggc acc tcg cag	298		
Phe Glu Cys Thr Phe Thr Cys Gly Ala Asp Cys Arg Gly Thr Ser Gln			
70	75	80	
tac ccc tgc gtc cag gtc tac gtg aac aac tct gag tcc aac tct agg	346		
Tyr Pro Cys Val Gln Val Tyr Val Asn Asn Ser Glu Ser Asn Ser Arg			
85	90	95	
gcg ctg ctg cac agc gac gag cac cag ctc ctg acc aac ccc aag tgc	394		
Ala Leu Leu His Ser Asp Glu His Gln Leu Leu Thr Asn Pro Lys Cys			
100	105	110	
tcc tat atc cct ccc tgt aag aga gaa aat cag aag aat ttg gaa agt	442		
Ser Tyr Ile Pro Pro Cys Lys Arg Glu Asn Gln Lys Asn Leu Glu Ser			
115	120	125	
gtc atg aat tgg caa cag tac tgg aaa gat gag att ggt tcc cag cca	490		
Val Met Asn Trp Gln Gln Tyr Trp Lys Asp Glu Ile Gly Ser Gln Pro			
130	135	140	145
ttt act tgc tat ttt aat caa cat caa aga cca gat gat gtg ctt ctg	538		
Phe Thr Cys Tyr Phe Asn Gln His Gln Arg Pro Asp Asp Val Leu Leu			
150	155	160	
cat cgc act cat gat gag att gtc ctc ctg cat tgc ttc ctc tgg ccc	586		
His Arg Thr His Asp Glu Ile Val Leu Leu His Cys Phe Leu Trp Pro			
165	170	175	
ctg gtg aca ttt gtg gtg ggc gtt ctc att gtg gtc ctg acc atc tgt	634		
Leu Val Thr Phe Val Val Gly Val Leu Ile Val Val Leu Thr Ile Cys			
180	185	190	
gcc aag agc ttg gcg gtc aag gcg gaa gcc atg aag aag cgc aag ttc	682		
Ala Lys Ser Leu Ala Val Lys Ala Glu Ala Met Lys Lys Arg Lys Phe			
195	200	205	
tct taa agggaaagga ggctttaga aagcaaagta cagaagctgt actcatcgcc	738		
Ser *			
210			
acgcgtccac ctgcggaacc tgggtttcct ggccgcaggag atggacaggg ccacgcacagg	798		
gctctgagag gctcatccct cagtgcaac agaaacaggc acaactggaa gacttggAAC	858		
ctcaaagctt gtattccatc tgctgttagca atggctaaag ggtcaagatc ttagctgtat	918		
ggagtaacta tttcagaaaa ccctataaga agttcattt ctttcaaaag taacagtata	978		
ttatttgtac agtgttagtat acaaaccatt atgatttatg ctactaaaa atattaaaaat	1038		
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aaaaaaaaaa	1107		

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 <213> Homo Sapiens

<400> 30

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 Ser Ile Arg Leu Gly Leu Phe Leu Ile Ile Ser Gly Val Val Ser Leu  
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 Phe Ile Phe Gly Phe Cys Trp Leu Ser Pro Ala Leu Gln Asp Leu Gln  
 35 40 45  
 Ala Thr Glu Ala Asn Cys Thr Val Leu Ser Val Gln Gln Ile Gly Glu  
 50 55 60  
 Val Phe Glu Cys Thr Phe Thr Cys Gly Ala Asp Cys Arg Gly Thr Ser  
 65 70 75 80  
 Gln Tyr Pro Cys Val Gln Val Tyr Val Asn Asn Ser Glu Ser Asn Ser  
 85 90 95  
 Arg Ala Leu Leu His Ser Asp Glu His Gln Leu Leu Thr Asn Pro Lys  
 100 105 110  
 Cys Ser Tyr Ile Pro Pro Cys Lys Arg Glu Asn Gln Lys Asn Leu Glu  
 115 120 125  
 Ser Val Met Asn Trp Gln Gln Tyr Trp Lys Asp Glu Ile Gly Ser Gln  
 130 135 140  
 Pro Phe Thr Cys Tyr Phe Asn Gln His Gln Arg Pro Asp Asp Val Leu  
 145 150 155 160  
 Leu His Arg Thr His Asp Glu Ile Val Leu Leu His Cys Phe Leu Trp  
 165 170 175  
 Pro Leu Val Thr Phe Val Val Gly Val Leu Ile Val Val Leu Thr Ile  
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 Cys Ala Lys Ser Leu Ala Val Lys Ala Glu Ala Met Lys Lys Arg Lys  
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 Phe Ser  
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 Met Thr Met Ala Gly Gly  
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agg agg gga cta gtg gcc cct caa aac acg ttt ctg gag aat att gtt 102  
 Arg Arg Gly Leu Val Ala Pro Gln Asn Thr Phe Leu Glu Asn Ile Val  
 10 15 20

cgg cgg tcc aat gat act aat ttt gtg ttg ggg aat gct cag ata gtg 150  
 Arg Arg Ser Asn Asp Thr Asn Phe Val Leu Gly Asn Ala Gln Ile Val  
 25 30 35

gac tgg cct att gtg tac agc aat gat gga ttt tgc aag ctg tct ggc 198  
 Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly Phe Cys Lys Leu Ser Gly  
 40 45 50

tat cac agg gca gaa gtg atg caa aaa agc agc acc tgc agt ttt atg 246  
 Tyr His Arg Ala Glu Val Met Gln Lys Ser Ser Thr Cys Ser Phe Met  
 55 60 65 70

tat ggg gag ctg act gat aaa gac acg att gaa aaa gtg cgg caa aca 294  
 Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile Glu Lys Val Arg Gln Thr

75	80	85	
ttt gag aac tat gag aat tcc ttt gaa att ctg atg tac aag aag Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu Ile Leu Met Tyr Lys Lys 90	95	100	342
aac agg aca cct gtg tgg ttc ttt gtg aaa att gct cca att cga aac Asn Arg Thr Pro Val Trp Phe Phe Val Lys Ile Ala Pro Ile Arg Asn 105	110	115	390
gaa cag gat aaa gtg gtt tta ttt ctt tgc act ttc agt gac ata aca Glu Gln Asp Lys Val Val Leu Phe Leu Cys Thr Phe Ser Asp Ile Thr 120	125	130	438
gct ttc aaa cag cca att gag gat gat tca tgt aaa ggc tgg ggg aag Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser Cys Lys Gly Trp Gly Lys 135	140	145	486
ttt gct cgg ctg aca aga gca ctg aca agc agc agg ggt gtc ctg cag Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser Ser Arg Gly Val Leu Gln 155	160	165	534
cag ctg gct cca agc gtg caa aaa ggc gag aat gtc cac aag cac tcc Gln Leu Ala Pro Ser Val Gln Lys Gly Glu Asn Val His Lys His Ser 170	175	180	582
cgc ctg gca gag gtc cta cag ctg ggc tca gac atc ctt ccc cag tac Arg Leu Ala Glu Val Leu Gln Leu Gly Ser Asp Ile Leu Pro Gln Tyr 185	190	195	630
aag caa gag gca cca aag act ccc cct cac atc atc tta cat tat tgt Lys Gln Glu Ala Pro Lys Thr Pro Pro His Ile Ile Leu His Tyr Cys 200	205	210	678
gtt ttt aag acc acg tgg gat tgg atc atc ttg atc ttg acc ttc tat Val Phe Lys Thr Thr Trp Asp Trp Ile Ile Leu Ile Leu Thr Phe Tyr 215	220	225	726
aca gcc atc ttg gtc cct tat aat gtc tcc ttc aaa acc agg cag aat Thr Ala Ile Leu Val Pro Tyr Asn Val Ser Phe Lys Thr Arg Gln Asn 235	240	245	774
aat gtg gcc tgg ctg gtt gat agc atc gtg gat gtt atc ttt ttg Asn Val Ala Trp Leu Val Val Asp Ser Ile Val Asp Val Ile Phe Leu 250	255	260	822
gtg gac att gtg ctc aat ttt cat acc acc ttt gtt gga cca gca ggg Val Asp Ile Val Leu Asn Phe His Thr Thr Phe Val Gly Pro Ala Gly 265	270	275	870
gag gtg att tct gac ccc aaa ctt atc cgc atg aac tac ctg aag acg Glu Val Ile Ser Asp Pro Lys Leu Ile Arg Met Asn Tyr Leu Lys Thr 280	285	290	918
tgg ttt gtg att gac ctt ctg tcc tgt ttg cca tat gat gtc atc aac Trp Phe Val Ile Asp Leu Leu Ser Cys Leu Pro Tyr Asp Val Ile Asn 295	300	305	966
gct ttt gag aac gtg gat gag gtt agt gcc ttt atg ggt gat cca ggg Ala Phe Glu Asn Val Asp Glu Val Ser Ala Phe Met Gly Asp Pro Gly 315	320	325	1014

aag att ggt ttt gct gat cag att cca cca cca ctg gag ggg aga gag		1062	
Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro Pro Leu Glu Gly Arg Glu			
330	335	340	
agt cag ggc atc agc agc ctg ttc agc tct cta aaa gtt gtc cgg ctg		1110	
Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu			
345	350	355	
ctc cgt ctt ggg cga gtg gcc cgt aag ctg gac cac tac att gaa tat		1158	
Leu Arg Leu Gly Arg Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr			
360	365	370	
gga gct gct gtg ctg gtc ctg gtg tgt gtg ttt ggg ctg gct gca		1206	
Gly Ala Ala Val Leu Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala			
375	380	385	390
cac tgg atg gcc tgc atc tgg tac agc att ggg gac tat gag atc ttt		1254	
His Trp Met Ala Cys Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe			
395	400	405	
gac gag gac acc aag aca atc cgc aac aac agc tgg ctg tac caa cta		1302	
Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu			
410	415	420	
gcg atg gac att ggc acc cct tac cag ttt aat ggg tct ggc tca ggg		1350	
Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe Asn Gly Ser Gly Ser Gly			
425	430	435	
aag tgg gaa ggt ggt ccc agc aag aat tct gtc tac atc tcc tcg ttg		1398	
Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser Val Tyr Ile Ser Ser Leu			
440	445	450	
tat ttc aca atg acc agc ctc acc agt gtg ggc ttt ggg aac atc gcc		1446	
Tyr Phe Thr Met Thr Ser Leu Thr Ser Val Gly Phe Gly Asn Ile Ala			
455	460	465	470
cca tcc aca gac att gag aag atc ttt gca gtg gcc atc atg atg att		1494	
Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile			
475	480	485	
ggc tca ctt ctc tat gcc acc atc ttc ggg aat gtg acg act att ttc		1542	
Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe			
490	495	500	
caa cag atg tat gcc aac acc aac aga tac cat gag atg ctc aac agt		1590	
Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser			
505	510	515	
gtt cgg gac ttc ctg aag ctc tac cag gtg cca aaa gga ttg agt gag		1638	
Val Arg Asp Phe Leu Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu			
520	525	530	
cga gta atg gat tat att gtg tcc act tgg tcc atg tcc aga ggc att		1686	
Arg Val Met Asp Tyr Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile			
535	540	545	550
gac aca gag aag gtc ctg cag atc tgc ccc aag gac atg aga gcc gac		1734	
Asp Thr Glu Lys Val Leu Gln Ile Cys Pro Lys Asp Met Arg Ala Asp			
555	560	565	
atc tgc gtg cac ctg aac cgc aag gtg ttc aag gag cac ccg gcc ttc		1782	
Ile Cys Val His Leu Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe			

	570	575	580	
cgg ctg gcc agt gat ggc tgc ctc cgg gca ctg gcc atg gag ttc cag Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln	585	590	595	1830
acg gtg cac tgt gcc cca ggg gac ctc atc tac cat gca gga gag agc Thr Val His Cys Ala Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Ser	600	605	610	1878
gtt gac agc ctc tgc ttt gtg gtt tct ggc tcc ctg gag gtg atc caa Val Asp Ser Leu Cys Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln	615	620	625	1926
gat gat gag gtg gtg gcc att cta gga aaa gga gac gtg ttt gga gat Asp Asp Glu Val Val Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp	635	640	645	1974
gtg ttc tgg aag gaa gcc acc ctt gcc cag tcc tgt gcc aat gtt agg Val Phe Trp Lys Glu Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg	650	655	660	2022
gcc ttg acc tac tgt gat ctg cat gtg atc aag cgg gat gcc ctg cag Ala Leu Thr Tyr Cys Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln	665	670	675	2070
aaa gtg ctg gaa ttc tac acg gcc ttc tcc cat tcc ttc tcc cgg aac Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn	680	685	690	2118
ctg att ctg acg tac aac ttg agg aag agg att gtg ttc cgg aag atc Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile	695	700	705	2166
agc gat gtg aaa cgt gaa gag gaa cgc atg aaa cga aag aat gag Ser Asp Val Lys Arg Glu Glu Glu Arg Met Lys Arg Lys Asn Glu	715	720	725	2214
gcc ccc ctg atc ttg ccc ccg gac cac cct gtc cgg cgc ctc ttc cag Ala Pro Leu Ile Leu Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln	730	735	740	2262
aga ttc cga cag cag aaa gag gcc agg ctg gca gct gag aga ggg ggc Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu Ala Ala Glu Arg Gly Gly	745	750	755	2310
cgg gac ctg gat gac cta gat gtg gag aag ggc aat gtc ctt aca gag Arg Asp Leu Asp Asp Leu Asp Val Glu Lys Gly Asn Val Leu Thr Glu	760	765	770	2358
cat gcc tcc gcc aac cac agc ctc gtg aag gcc agc gtg gtc acc gtg His Ala Ser Ala Asn His Ser Leu Val Lys Ala Ser Val Val Thr Val	775	780	785	2406
cgt gag agt cct gcc acg ccc gta tcc ttc cag gca gcc tcc acc tcc Arg Glu Ser Pro Ala Thr Pro Val Ser Phe Gln Ala Ala Ser Thr Ser	795	800	805	2454
ggg gtg cca gac cac gca aag cta cag gcg cca ggg tcc gag tgc ctg Gly Val Pro Asp His Ala Lys Leu Gln Ala Pro Gly Ser Glu Cys Leu	810	815	820	2502

ggc ccc aag ggg ggc ggg ggc gat tgt gcc aag cgc aaa agc tgg gcc	2550
Gly Pro Lys Gly Gly Gly Asp Cys Ala Lys Arg Lys Ser Trp Ala	
825 830 835	
cgc ttc aaa gat gct tgc ggg aag agt gag gac tgg aac aag gtg tcc	2598
Arg Phe Lys Asp Ala Cys Gly Lys Ser Glu Asp Trp Asn Lys Val Ser	
840 845 850	
aag gct gag tcg atg gag aca ctt ccc gag agg aca aaa gcg tca ggc	2646
Lys Ala Glu Ser Met Glu Thr Leu Pro Glu Arg Thr Lys Ala Ser Gly	
855 860 865 870	
gag gcc aca ctg aag aag aca gac tcg tgt gac agt ggc atc acc aag	2694
Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys Asp Ser Gly Ile Thr Lys	
875 880 885	
agc gac ttg cgc ctg gac aac gtg ggt gag gcc agg agt ccc cag gat	2742
Ser Asp Leu Arg Leu Asp Asn Val Gly Glu Ala Arg Ser Pro Gln Asp	
890 895 900	
cgg agt ccc atc ctg gca gag gtc aag cat tcg ttc tac ccc atc cct	2790
Arg Ser Pro Ile Leu Ala Glu Val Lys His Ser Phe Tyr Pro Ile Pro	
905 910 915	
gag cag acg ctg cag gcc aca gtc ctg gag gtg agg cac gag ctg aag	2838
Glu Gln Thr Leu Gln Ala Thr Val Leu Glu Val Arg His Glu Leu Lys	
920 925 930	
gag gac atc aag gcc tta aac gcc aaa atg acc aat att gag aaa cag	2886
Glu Asp Ile Lys Ala Leu Asn Ala Lys Met Thr Asn Ile Glu Lys Gln	
935 940 945 950	
ctc tct gag ata ctc agg ata tta act tcc aga aga tcc tct cag tct	2934
Leu Ser Glu Ile Leu Arg Ile Leu Thr Ser Arg Arg Ser Ser Gln Ser	
955 960 965	
cct cag gag ttg ttt gaa ata tcg agg cca cag tcc cca gaa tca gag	2982
Pro Gln Glu Leu Phe Glu Ile Ser Arg Pro Gln Ser Pro Glu Ser Glu	
970 975 980	
aga gac att ttt gga gcc agc tga gaggtctatt taaaaaaaaa gtcagagaca	3036
Arg Asp Ile Phe Gly Ala Ser *	
985	
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Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly	
35 40 45	
Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser	
50 55 60	
Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile	
65 70 75 80	

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu  
       85                 90                 95  
 Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys  
       100             105             110  
 Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys  
       115             120             125  
 Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser  
       130             135             140  
 Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser  
       145             150             155             160  
 Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu  
       165             170             175  
 Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser  
       180             185             190  
 Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His  
       195             200             205  
 Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile  
       210             215             220  
 Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser  
       225             230             235             240  
 Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile  
       245             250             255  
 Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr  
       260             265             270  
 Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg  
       275             280             285  
 Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu  
       290             295             300  
 Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Val Ser Ala  
       305             310             315             320  
 Phe Met Gly Asp Pro Gly Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro  
       325             330             335  
 Pro Leu Glu Gly Arg Glu Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser  
       340             345             350  
 Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg Lys Leu  
       355             360             365  
 Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu Val Cys  
       370             375             380  
 Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr Ser Ile  
       385             390             395             400  
 Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn  
       405             410             415  
 Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe  
       420             425             430  
 Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser  
       435             440             445  
 Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr Ser Val  
       450             455             460  
 Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala  
       465             470             475             480  
 Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly  
       485             490             495  
 Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr  
       500             505             510  
 His Glu Met Leu Asn Ser Val Arg Asp Phe Leu Lys Leu Tyr Gln Val  
       515             520             525  
 Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr Ile Val Ser Thr Trp  
       530             535             540  
 Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val Leu Gln Ile Cys Pro  
       545             550             555             560  
 Lys Asp Met Arg Ala Asp Ile Cys Val His Leu Asn Arg Lys Val Phe  
       565             570             575

Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala  
 580 585 590  
 Leu Ala Met Glu Phe Gln Thr Val His Cys Ala Pro Gly Asp Leu Ile  
 595 600 605  
 Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys Phe Val Val Ser Gly  
 610 615 620  
 Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val Ala Ile Leu Gly Lys  
 625 630 635 640  
 Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu Ala Thr Leu Ala Gln  
 645 650 655  
 Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys Asp Leu His Val Ile  
 660 665 670  
 Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser  
 675 680 685  
 His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg  
 690 695 700  
 Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg Glu Glu Glu Arg  
 705 710 715 720  
 Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu Pro Pro Asp His Pro  
 725 730 735  
 Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu  
 740 745 750  
 Ala Ala Glu Arg Gly Arg Asp Leu Asp Asp Leu Asp Val Glu Lys  
 755 760 765  
 Gly Asn Val Leu Thr Glu His Ala Ser Ala Asn His Ser Leu Val Lys  
 770 775 780  
 Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro Val Ser Phe  
 785 790 795 800  
 Gln Ala Ala Ser Thr Ser Gly Val Pro Asp His Ala Lys Leu Gln Ala  
 805 810 815  
 Pro Gly Ser Glu Cys Leu Gly Pro Lys Gly Gly Gly Asp Cys Ala  
 820 825 830  
 Lys Arg Lys Ser Trp Ala Arg Phe Lys Asp Ala Cys Gly Lys Ser Glu  
 835 840 845  
 Asp Trp Asn Lys Val Ser Lys Ala Glu Ser Met Glu Thr Leu Pro Glu  
 850 855 860  
 Arg Thr Lys Ala Ser Gly Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys  
 865 870 875 880  
 Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn Val Gly Glu  
 885 890 895  
 Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu Val Lys His  
 900 905 910  
 Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Thr Val Leu Glu  
 915 920 925  
 Val Arg His Glu Leu Lys Glu Asp Ile Lys Ala Leu Asn Ala Lys Met  
 930 935 940  
 Thr Asn Ile Glu Lys Gln Leu Ser Glu Ile Leu Arg Ile Leu Thr Ser  
 945 950 955 960  
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ccaaaagagt gctgacacca tcacagtatg ttcccttctc aaccctggac atggttcaga 180  
aacagctaaa gcagacaaga atctggggca gccaatattg taccacctgc caaagcttgg 240  
cacaacaat ctggaagccca aaaattgcac atactgtgga acagagcaag tggttctggc 300  
ctccctggga tttggatcct gtttccaga gctaagaaca caaagtc atg aag gtg 356  
Met Lys Val  
1

aag gag gag aag gct ggg gta gga aag ctg gac cac act aac cac agg 404  
Lys Glu Glu Lys Ala Gly Val Gly Lys Leu Asp His Thr Asn His Arg  
5 10 15

agg aga ttt ccg gat cag aaa gaa tgc cct cct atc cac att ggg ctt 452  
Arg Arg Phe Pro Asp Gln Lys Glu Cys Pro Pro Ile His Ile Gly Leu  
20 25 30 35

cca gta ccc act tac cct caa aga aaa act gac cag aag gga cat ctt 500  
Pro Val Pro Thr Tyr Pro Gln Arg Lys Thr Asp Gln Lys Gly His Leu  
40 45 50

tca ggc ctg caa aaa gtc cac tgg ggc ctg cgg cca gac cag cca cag 548  
Ser Gly Leu Gln Lys Val His Trp Gly Leu Arg Pro Asp Gln Pro Gln  
55 60 65

cag gaa ctg act ggc cca ggg agt ggg gca agc agc cag gac agc agc 596  
Gln Glu Leu Thr Gly Pro Gly Ser Gly Ala Ser Ser Gln Asp Ser Ser  
70 75 80

atg gat ctt atc agc agg act cgg tcc cca gct gct gag cag ctc cag 644  
Met Asp Leu Ile Ser Arg Thr Arg Ser Pro Ala Ala Glu Gln Leu Gln  
85 90 95

gac atc ctg ggg gag gaa gat gag gct ccc aac ccc acc ctc ttt aca 692  
Asp Ile Leu Gly Glu Asp Glu Ala Pro Asn Pro Thr Leu Phe Thr  
100 105 110 115

gag atg gat act ctg cag cat gac gga gac cag atg gag tgg aag gag 740  
Glu Met Asp Thr Leu Gln His Asp Gly Asp Gln Met Glu Trp Lys Glu  
120 125 130

tca gcc agg tgg ata aag ttt gaa gaa aag gta gag gaa ggc ggc gaa 788  
Ser Ala Arg Trp Ile Lys Phe Glu Glu Lys Val Glu Glu Gly Gly Glu  
135 140 145

cgc tgg agc aag ccc cac gtg tcc aca cta tcc ctg cac agc ctc ttc 836  
Arg Trp Ser Lys Pro His Val Ser Thr Leu Ser Leu His Ser Leu Phe  
150 155 160

gag ctc cgt acc tgc ctg cag acg ggg acg gtg ctg ctg gat ttg gac 884  
Glu Leu Arg Thr Cys Leu Gln Thr Gly Thr Val Leu Leu Asp Leu Asp  
165 170 175

agt ggc tcc tta cca cag atc ata gat gat gtc att gag aag cag att 932  
Ser Gly Ser Leu Pro Gln Ile Ile Asp Asp Val Ile Glu Lys Gln Ile  
180 185 190 195

gag gat ggt ctc ctg cgg cca gag ctc cgg gag agg gtc agt tac gtc 980  
Glu Asp Gly Leu Leu Arg Pro Glu Leu Arg Glu Arg Val Ser Tyr Val  
200 205 210

ctc ctg agg agg cac cgc cac caa acc aag aag ccc atc cac cgc tcc	1028
Leu Leu Arg Arg His Arg His Gln Thr Lys Lys Pro Ile His Arg Ser	
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Leu Ala Asp Ile Gly Lys Ser Val Ser Thr Thr Asn Arg Ser Pro Ala	
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Arg Ser Pro Gly Ala Gly Pro Ser Leu His His Ser Thr Glu Asp Leu	
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Arg Met Arg Gln Ser Ala Asn Tyr Gly Arg Leu Cys His Ala Gln Ser	
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Arg Ser Met Asn Asp Ile Ser Leu Thr Pro Asn Thr Asp Gln Arg Lys	
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Asn Lys Phe Met Lys Lys Ile Pro Lys Asp Ser Glu Ala Ser Asn Val	
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Leu Val Gly Glu Val Asp Phe Leu Asp Gln Pro Phe Ile Ala Phe Val	
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Arg Leu Ile Gln Ser Ala Met Leu Gly Gly Val Thr Glu Val Pro Val	
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ccc acc aga ttt ctg ttt ata cta ctg gga cct tct ggg aga gca aaa	1412
Pro Thr Arg Phe Leu Phe Ile Leu Leu Gly Pro Ser Gly Arg Ala Lys	
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Ser Tyr Asn Glu Ile Gly Arg Ala Ile Ala Thr Leu Met Val Asp Asp	
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Ala Gly Ile Asp Glu Phe Leu Asp Glu Val Ile Val Leu Pro Pro Gly	
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Glu Trp Asp Pro Asn Ile Arg Ile Glu Pro Pro Lys Lys Val Pro Ser	
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Ala Asp Lys Arg Lys Ser Val Phe Ser Leu Ala Glu Leu Gly Gln Met	
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Asn Gly Ser Val Gly Gly Gly Gly Ala Pro Gly Gly Gly Asn Gly	
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Gly	Gly	Thr	Ser	Ser	Gly	Asp	Asp	Gly	Glu	Met	Pro	Ala	Met	His	Glu	
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Ile	Gly	Glu	Leu	Ile	Trp	Thr	Gly	Arg	Phe	Phe	Gly	Gly	Leu	Cys		
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His	Ser	Ala	Val	Gln	Cys	Leu	Ile	Leu	Val	Ala	Thr	Asp	Ala	Ser	Phe	
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Phe	Lys	Tyr	Tyr	Pro	Ile	Asn	Met	Asp	Phe	Lys	Pro	Asn	Phe	Ile	Thr	
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acc	tac	aag	tgc	gag	tgt	gtc	cct	gac	aca	gtg	aat	aca	acc	gtg		2420
Thr	Tyr	Lys	Cys	Glu	Cys	Val	Ala	Pro	Asp	Thr	Val	Asn	Thr	Thr	Val	
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Phe	Asn	Ala	Ser	Ala	Pro	Leu	Ala	Pro	Asp	Thr	Asn	Ala	Ser	Leu	Tyr	
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gag tgt ctg agc tac ggc ggg cgc ctg ctt ggg aat tcc tgc aag ttt Glu Cys Leu Ser Tyr Gly Gly Arg Leu Leu Gly Asn Ser Cys Lys Phe 725 730 735	2564
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tcc atg acc ctg acc ctg aag aag ttc aaa ttc agc cgc tat ttt cct Ser Met Thr Leu Thr Leu Lys Lys Phe Lys Phe Ser Arg Tyr Phe Pro 760 765 770	2660
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gcc ggc tac cat ctg gac ctg ttc tgg gtg ggc atc ctc atg gct ttg Ala Gly Tyr His Leu Asp Leu Phe Trp Val Gly Ile Leu Met Ala Leu 870 875 880	2996
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Phe	Leu	Met	Pro	Ala	Lys	His	Gln	Pro	Asp	His	Ala	Phe	Leu	Arg	His	
980			985					990			995					
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Pro	Val	Met	Ile	Leu	Gly	Leu	Ile	Ile	Val	Arg	Arg	Leu	Leu	Asp	Phe	
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His	Glu	Asp	Cys	Asp	Glu	Glu	Pro	Gln	Phe	Pro	Pro	Pro	Ser	Val	Ile	
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Cys	Ile	Ala	Arg	Lys	Arg	Ser	Ser	Ser	Trp	Ser	Tyr	Ser	Leu	*		
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<212> PRT

<213> Homo Sapiens

<400> 34

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Gln	Leu	Gln	Asp	Ile	Leu	Gly	Glu	Glu	Asp	Glu	Ala	Pro	Asn	Pro	Thr
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 Ser Asn Val Leu Val Gly Glu Val Asp Phe Leu Asp Gln Pro Phe Ile  
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 Gly Gly Ala Gly Gly Thr Ser Ser Gly Asp Asp Gly Glu Met Pro Ala  
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 Gly Leu Cys Leu Asp Ile Lys Arg Lys Leu Pro Trp Phe Pro Ser Asp  
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 Thr Thr Val Phe Asn Ala Ser Ala Pro Leu Ala Pro Asp Thr Asn Ala  
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 Ser Leu Tyr Asn Leu Leu Asn Leu Thr Ala Leu Asp Trp Ser Leu Leu  
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 Ser Lys Lys Glu Cys Leu Ser Tyr Gly Gly Arg Leu Leu Gly Asn Ser  
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Cys Lys Phe Ile Pro Asp Leu Ala Leu Met Ser Phe Ile Leu Phe Phe  
 740 745 750  
 Gly Thr Tyr Ser Met Thr Leu Thr Leu Lys Lys Phe Lys Phe Ser Arg  
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 Tyr Phe Pro Thr Lys Val Arg Ala Leu Val Ala Asp Phe Ser Ile Val  
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 Phe Ser Ile Leu Met Phe Cys Gly Ile Asp Ala Cys Phe Gly Leu Glu  
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 Thr Pro Lys Leu His Val Pro Ser Val Ile Lys Pro Thr Arg Pro Asp  
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 Arg Gly Trp Phe Val Ala Pro Phe Gly Lys Asn Pro Trp Trp Val Tyr  
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 Pro Ala Ser Ile Leu Pro Ala Leu Leu Val Thr Ile Leu Ile Phe Met  
 835 840 845  
 Asp Gln Gln Ile Thr Ala Val Ile Val Asn Arg Lys Glu Asn Lys Leu  
 850 855 860  
 Lys Lys Ala Ala Gly Tyr His Leu Asp Leu Phe Trp Val Gly Ile Leu  
 865 870 875 880  
 Met Ala Leu Cys Ser Phe Met Gly Leu Pro Trp Tyr Val Ala Ala Thr  
 885 890 895  
 Val Ile Ser Ile Ala His Ile Asp Ser Leu Lys Met Glu Thr Glu Thr  
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 Ser Ala Pro Gly Glu Gln Pro Gln Phe Leu Gly Val Arg Glu Gln Arg  
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 Val Thr Gly Ile Ile Val Phe Ile Leu Thr Gly Ile Ser Val Phe Leu  
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 Cys Lys Leu Phe Leu Met Pro Ala Lys His Gln Pro Asp His Ala Phe  
 980 985 990  
 Leu Arg His Val Pro Leu Arg Arg Ile His Leu Phe Thr Leu Val Gln  
 995 1000 1005  
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 1045 1050 1055  
 Leu Pro Glu Lys Glu Lys Glu Thr Asp Lys Lys Arg Lys Arg Lys  
 1060 1065 1070  
 Lys Gly Ala His Glu Asp Cys Asp Glu Glu Pro Gln Phe Pro Pro Pro  
 1075 1080 1085  
 Ser Val Ile Lys Ile Pro Met Glu Ser Val Gln Ser Asp Pro Gln Asn  
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 <212> DNA  
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<220>  
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     Met Leu Arg Ala Ala Leu Ser Leu Leu Ala Leu Pro Leu Ala  
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 Gly Ala Ala Glu Glu Pro Thr Gln Lys Pro Glu Ser Pro Gly Glu Pro  
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ccc cca ggc tta gag ctc ttc cgc tgg cag tgg cac gag gtg gag gcg 207  
 Pro Pro Gly Leu Glu Leu Phe Arg Trp Gln Trp His Glu Val Glu Ala  
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ccc tac ctg gtg gcc ctg tgg atc ctg gtg gcc agt ctg gcc aaa atc 255  
 Pro Tyr Leu Val Ala Leu Trp Ile Leu Val Ala Ser Leu Ala Lys Ile  
   50                   55                   60

gtg ttt cac ctg tct cgg aaa gta aca tct ctg gtc cct gag agc tgc 303  
 Val Phe His Leu Ser Arg Lys Val Thr Ser Leu Val Pro Glu Ser Cys  
   65                   70                   75

ctg ctg att ttg ctg ggc ctg gtg cta ggg gga att gtt ttg gct gtg 351  
 Leu Leu Ile Leu Leu Gly Leu Val Leu Gly Gly Ile Val Leu Ala Val  
   80                   85                   90

gcc aag aaa gct gag tac cag ctg gag cca ggc acc ttc ttc ctc ttc 399  
 Ala Lys Lys Ala Glu Tyr Gln Leu Glu Pro Gly Thr Phe Phe Leu Phe  
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ctg ctg cct att gtg ttg gac tca ggc tat ttc atg cct agc agg 447  
 Leu Leu Pro Pro Ile Val Leu Asp Ser Gly Tyr Phe Met Pro Ser Arg  
   115                   120                   125

ctg ttc ttt gac aac ttg ggt gcc atc ctc acc tat gcc gtg gta ggc 495  
 Leu Phe Phe Asp Asn Leu Gly Ala Ile Leu Thr Tyr Ala Val Val Gly  
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aca ctc tgg aat gcc ttc aca aca ggc gct gcc ctc tgg ggc ttg cag 543  
 Thr Leu Trp Asn Ala Phe Thr Thr Gly Ala Ala Leu Trp Gly Leu Gln  
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cag gct gga ctt gta gcc cct agg gtg cag gct ggc tta ctg gac ttc 591  
 Gln Ala Gly Leu Val Ala Pro Arg Val Gln Ala Gly Leu Leu Asp Phe  
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ctg ctg ttt ggg agc ctc atc tcg gcg gtg gac ccc gtg gcc gtg cta 639  
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gct gtc ttt gag gag gtg cac gtc aat gag act ctc ttt atc atc gtc 687  
 Ala Val Phe Glu Glu Val His Val Asn Glu Thr Leu Phe Ile Ile Val  
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ttt ggc gag tcc ctc aac gat gct gtc acc gtg gtg ctg tac aag 735  
 Phe Gly Glu Ser Leu Leu Asn Asp Ala Val Thr Val Val Leu Tyr Lys  
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gtc tgc aac tcc ttt gtg gag atg ggc tct gcc aat gtg cag gcc act 783  
 Val Cys Asn Ser Phe Val Glu Met Gly Ser Ala Asn Val Gln Ala Thr  
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gac tac ctg aag gga gtc gcc tcc ctg ttt gtg gtc agt ctg ggc ggg 831

Asp Tyr Leu Lys Gly Val Ala Ser Leu Phe Val Val Ser Leu Gly Gly			
240	245	250	
gca gcc gtg ggc tta gtc ttt gcc ttc ctc ctg gcc ctg acc aca cgc		879	
Ala Ala Val Gly Leu Val Phe Ala Phe Leu Leu Ala Leu Thr Thr Arg			
255	260	265	270
ttc acc aag cgg gtc cgc atc atc gag ccg ctg ctg gtc ttc ctc ctc		927	
Phe Thr Lys Arg Val Arg Ile Ile Glu Pro Leu Leu Val Phe Leu Leu			
275	280	285	
gcc tac gca gcc tac ctc act gct gaa atg gcc tcg ctc tcc gcc att		975	
Ala Tyr Ala Ala Tyr Leu Thr Ala Glu Met Ala Ser Leu Ser Ala Ile			
290	295	300	
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Leu Ala Val Thr Met Cys Gly Leu Gly Cys Lys Lys Tyr Val Glu Ala			
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aac atc tcc cat aag tca cgc aca act gtc aaa tat aca atg aag act		1071	
Asn Ile Ser His Lys Ser Arg Thr Thr Val Lys Tyr Thr Met Lys Thr			
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cta gcc agc tgt gct gag acc gtc atc ttc atg ctg ctt ggc atc tca		1119	
Leu Ala Ser Cys Ala Glu Thr Val Ile Phe Met Leu Leu Gly Ile Ser			
335	340	345	350
gcc gtg gac tct tct aag tgg gcc tgg gat tct ggg ctg gtg ctg ggc		1167	
Ala Val Asp Ser Ser Lys Trp Ala Trp Asp Ser Gly Leu Val Leu Gly			
355	360	365	
acc ctc atc ttc atc ctg ttc cga gcc ctc ggc gta gtc ctg cag		1215	
Thr Leu Ile Phe Ile Leu Phe Phe Arg Ala Leu Gly Val Val Leu Gln			
370	375	380	
acc tgg gtg ctg aat cag ttc cgg cta gtc cct ctg gac aag att gac		1263	
Thr Trp Val Leu Asn Gln Phe Arg Leu Val Pro Leu Asp Lys Ile Asp			
385	390	395	
caa gtg gtg atg tcc tat ggg ggc ctg cgg ggg gct gtg gcc ttt gct		1311	
Gln Val Val Met Ser Tyr Gly Gly Leu Arg Gly Ala Val Ala Phe Ala			
400	405	410	
ctc gtc atc cta ctg gat agg acc aag gtc cct gcc aag gac tac ttt		1359	
Leu Val Ile Leu Leu Asp Arg Thr Lys Val Pro Ala Lys Asp Tyr Phe			
415	420	425	430
gta gcc acc act att gta gtg gtc ttc aca gtc atc gtg cag ggc		1407	
Val Ala Thr Thr Ile Val Val Phe Phe Thr Val Ile Val Gln Gly			
435	440	445	
ttg acc atc aag cca ctg gtc aaa tgg ctg aag gtg aag agg agt gag		1455	
Leu Thr Ile Lys Pro Leu Val Lys Trp Leu Lys Val Lys Arg Ser Glu			
450	455	460	
cat cac aaa ccc acc ctg aac cag gag ctg cat gaa cac act ttt gac		1503	
His His Lys Pro Thr Leu Asn Gln Glu Leu His Glu His Thr Phe Asp			
465	470	475	
cac att ctg gct gca gtg gag gac gtt gtg ggg cac cat ggc tac cac		1551	
His Ile Leu Ala Ala Val Glu Asp Val Val Gly His His Gly Tyr His			
480	485	490	

tac tgg agg gac agg tgg gag cag ttt gac aag aaa tac ctg agt cag Tyr Trp Arg Asp Arg Trp Glu Gln Phe Asp Lys Lys Tyr Leu Ser Gln 495 500 505 510	1599
ctg ctg atg cga cga tca gcc tac cgc atc cgg gac cag atc tgg gat Leu Leu Met Arg Arg Ser Ala Tyr Arg Ile Arg Asp Gln Ile Trp Asp 515 520 525	1647
gtg tac tac agg ctt aac atc cgg gat gcc atc agc ttt gtg gac cag Val Tyr Tyr Arg Leu Asn Ile Arg Asp Ala Ile Ser Phe Val Asp Gln 530 535 540	1695
gga ggc cac gtc ttg tct tcc aca ggt ctc act ctg cct tct atg ccc Gly Gly His Val Leu Ser Ser Thr Gly Leu Thr Leu Pro Ser Met Pro 545 550 555	1743
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agt ggc agt gga gcg tgt ctg gat ctg cag gtg att gac aca gta cgc Ser Gly Ser Gly Ala Cys Leu Asp Leu Gln Val Ile Asp Thr Val Arg 575 580 585 590	1839
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cag aac atg aag cgg cgg ctg gag tcc ttt aag tcc acc aag cac aac Gln Asn Met Lys Arg Arg Leu Glu Ser Phe Lys Ser Thr Lys His Asn 640 645 650	2031
atc tgc ttc acc aag agc aag cca cga ccc cgc aag act ggc cgc agg Ile Cys Phe Thr Lys Ser Lys Pro Arg Pro Arg Lys Thr Gly Arg Arg 655 660 665 670	2079
aag aag gat ggt gtg gcg aat gct gag gct aca aat ggg aaa cat cga Lys Lys Asp Gly Val Ala Asn Ala Glu Ala Thr Asn Gly Lys His Arg 675 680 685	2127
ggc ctg ggc ttt cag gac aca gct gct gtg ata tta acc gtg gag tct Gly Leu Gly Phe Gln Asp Thr Ala Ala Val Ile Leu Thr Val Glu Ser 690 695 700	2175
gag gag gag gag gag agc gac agt tca gag aca gag aag gag gac Glu Glu Glu Glu Glu Ser Asp Ser Ser Glu Thr Glu Lys Glu Asp 705 710 715	2223
gat gag ggg atc atc ttt gtg gct cgt gcc acc agt gag gtt ctc caa Asp Glu Gly Ile Ile Phe Val Ala Arg Ala Thr Ser Glu Val Leu Gln 720 725 730	2271
gag ggc aag gtc tca gga agc ctt gag gtg tgc cca agc cca cga atc	2319

Glu Gly Lys Val Ser Gly Ser Leu Glu Val Cys Pro Ser Pro Arg Ile  
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 Ile Pro Pro Ser Pro Thr Cys Ala Glu Lys Glu Leu Pro Trp Lys Ser  
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 ggg cag ggg gac ctg gca gtg tac gtg tcc tcg gaa acc acc aag att 2415  
 Gly Gln Gly Asp Leu Ala Val Tyr Val Ser Ser Glu Thr Thr Lys Ile  
 770 775 780  
 gtg cct gtg gac atg cag acg ggt tgg aac cag agc atc tca tcc ctg 2463  
 Val Pro Val Asp Met Gln Thr Gly Trp Asn Gln Ser Ile Ser Ser Leu  
 785 790 795  
 gag agc cta gcg tcc cct ccc tgt aac cag gcc cca att ctg acc tgc 2511  
 Glu Ser Leu Ala Ser Pro Pro Cys Asn Gln Ala Pro Ile Leu Thr Cys  
 800 805 810  
 ctg cct ccc cat cca cgg ggc act gaa gag ccc cag gtc cct ctc cac 2559  
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 815 820 825 830  
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 Leu Pro Ser Asp Pro Arg Ser Ser Phe Ala Phe Pro Pro Ser Leu Ala  
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 aag gct ggc cgc tct cgc agt gag agc agc gct gac ctc ccc cag cag 2655  
 Lys Ala Gly Arg Ser Arg Ser Glu Ser Ser Ala Asp Leu Pro Gln Gln  
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 cag gag ctg cag ccc ctc atg ggc cac aag gac cac acc cat ctc agc 2703  
 Gln Glu Leu Gln Pro Leu Met Gly His Lys Asp His Thr His Leu Ser  
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 cca ggc acc gct acc tcc cac tgg tgc atc cag ttc aac aga ggc agc 2751  
 Pro Gly Thr Ala Thr Ser His Trp Cys Ile Gln Phe Asn Arg Gly Ser  
 880 885 890  
 cg<sup>g</sup> ctg tag ctcaaggc<sup>c</sup> cggggaggag caggagg<sup>t</sup>gg aatcc<sup>c</sup>tgtg 2800  
 Arg Leu \*  
 895  
 ggaagtgc<sup>t</sup> cctgggtgat ggtagagcc ctcgaaactt gacatggggc cagaagg<sup>g</sup>cc 2860  
 tgggttgaag tagtaattgg gcttc<sup>t</sup>ttgg agctagt<sup>c</sup>tag aggggtcacc taagctgg<sup>t</sup>c 2920  
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 a 3761

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<213> Homo Sapiens

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Gly Leu Glu Leu Phe Arg Trp Gln Trp His Glu Val Glu Ala Pro Tyr  
35 40 45  
Leu Val Ala Leu Trp Ile Leu Val Ala Ser Leu Ala Lys Ile Val Phe  
50 55 60  
His Leu Ser Arg Lys Val Thr Ser Leu Val Pro Glu Ser Cys Leu Leu  
65 70 75 80  
Ile Leu Leu Gly Leu Val Leu Gly Gly Ile Val Leu Ala Val Ala Lys  
85 90 95  
Lys Ala Glu Tyr Gln Leu Glu Pro Gly Thr Phe Phe Leu Phe Leu Leu  
100 105 110  
Pro Pro Ile Val Leu Asp Ser Gly Tyr Phe Met Pro Ser Arg Leu Phe  
115 120 125  
Phe Asp Asn Leu Gly Ala Ile Leu Thr Tyr Ala Val Val Gly Thr Leu  
130 135 140  
Trp Asn Ala Phe Thr Thr Gly Ala Ala Leu Trp Gly Leu Gln Gln Ala  
145 150 155 160  
Gly Leu Val Ala Pro Arg Val Gln Ala Gly Leu Leu Asp Phe Leu Leu  
165 170 175  
Phe Gly Ser Leu Ile Ser Ala Val Asp Pro Val Ala Val Leu Ala Val  
180 185 190  
Phe Glu Glu Val His Val Asn Glu Thr Leu Phe Ile Ile Val Phe Gly  
195 200 205  
Glu Ser Leu Leu Asn Asp Ala Val Thr Val Val Leu Tyr Lys Val Cys  
210 215 220  
Asn Ser Phe Val Glu Met Gly Ser Ala Asn Val Gln Ala Thr Asp Tyr  
225 230 235 240  
Leu Lys Gly Val Ala Ser Leu Phe Val Val Ser Leu Gly Gly Ala Ala  
245 250 255  
Val Gly Leu Val Phe Ala Phe Leu Ala Leu Thr Thr Arg Phe Thr  
260 265 270  
Lys Arg Val Arg Ile Ile Glu Pro Leu Leu Val Phe Leu Leu Ala Tyr  
275 280 285  
Ala Ala Tyr Leu Thr Ala Glu Met Ala Ser Leu Ser Ala Ile Leu Ala  
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Val Thr Met Cys Gly Leu Gly Cys Lys Tyr Val Glu Ala Asn Ile  
305 310 315 320  
Ser His Lys Ser Arg Thr Thr Val Lys Tyr Thr Met Lys Thr Leu Ala  
325 330 335  
Ser Cys Ala Glu Thr Val Ile Phe Met Leu Leu Gly Ile Ser Ala Val  
340 345 350  
Asp Ser Ser Lys Trp Ala Trp Asp Ser Gly Leu Val Leu Gly Thr Leu  
355 360 365  
Ile Phe Ile Leu Phe Phe Arg Ala Leu Gly Val Val Leu Gln Thr Trp  
370 375 380  
Val Leu Asn Gln Phe Arg Leu Val Pro Leu Asp Lys Ile Asp Gln Val  
385 390 395 400  
Val Met Ser Tyr Gly Gly Leu Arg Gly Ala Val Ala Phe Ala Leu Val  
405 410 415  
Ile Leu Leu Asp Arg Thr Lys Val Pro Ala Lys Asp Tyr Phe Val Ala  
420 425 430  
Thr Thr Ile Val Val Val Phe Phe Thr Val Ile Val Gln Gly Leu Thr  
435 440 445  
Ile Lys Pro Leu Val Lys Trp Leu Lys Val Lys Arg Ser Glu His His

450	455	460
Lys Pro Thr Leu Asn Gln	Glu Leu His Glu His	Thr Phe Asp His Ile
465	470	475
Leu Ala Ala Val Glu Asp Val Val Gly	His His Gly Tyr His	Tyr Trp
485	490	495
Arg Asp Arg Trp Glu Gln Phe Asp	Lys Lys Tyr Leu Ser	Gln Leu Leu
500	505	510
Met Arg Arg Ser Ala Tyr Arg	Ile Arg Asp Gln Ile	Trp Asp Val Tyr
515	520	525
Tyr Arg Leu Asn Ile Arg Asp Ala	Ile Ser Phe Val Asp Gln Gly	Gly
530	535	540
His Val Leu Ser Ser Thr Gly	Leu Thr Leu Pro	Ser Met Pro Ser Arg
545	550	555
Asn Ser Val Ala Glu Thr Ser Val Thr	Asn Leu Leu Arg	Glu Ser Gly
565	570	575
Ser Gly Ala Cys Leu Asp Leu Gln	Val Ile Asp Thr Val Arg	Ser Gly
580	585	590
Arg Asp Arg Glu Asp Ala Val	Met His His Leu Leu Cys	Gly Gly Leu
595	600	605
Tyr Lys Pro Arg Arg Arg	Tyr Lys Ala Ser Cys	Ser Arg His Phe Ile
610	615	620
Ser Glu Asp Ala Gln Glu Arg	Gln Asp Lys Glu Val	Phe Gln Gln Asn
625	630	635
Met Lys Arg Arg Leu Glu Ser	Phe Lys Ser Thr Lys His	Asn Ile Cys
645	650	655
Phe Thr Lys Ser Lys Pro Arg Pro	Arg Lys Thr Gly Arg Arg	Lys Lys
660	665	670
Asp Gly Val Ala Asn Ala Glu	Ala Thr Asn Gly Lys His	Arg Gly Leu
675	680	685
Gly Phe Gln Asp Thr Ala Ala Val	Ile Leu Thr Val Glu	Ser Glu Glu
690	695	700
Glu Glu Glu Ser Asp Ser Ser	Glu Thr Glu Lys Glu Asp Asp	Glu
705	710	715
Gly Ile Ile Phe Val Ala Arg	Ala Thr Ser Glu Val Leu	Gln Glu Gly
725	730	735
Lys Val Ser Gly Ser Leu Glu Val	Cys Pro Ser Pro Arg	Ile Ile Pro
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Pro Ser Pro Thr Cys Ala Glu	Lys Glu Leu Pro Trp	Lys Ser Gly Gln
755	760	765
Gly Asp Leu Ala Val Tyr Val	Ser Ser Glu Thr Thr Lys	Ile Val Pro
770	775	780
Val Asp Met Gln Thr Gly Trp	Asn Gln Ser Ile Ser	Ser Leu Glu Ser
785	790	795
Leu Ala Ser Pro Pro Cys Asn	Gln Ala Pro Ile Leu Thr	Cys Leu Pro
805	810	815
Pro His Pro Arg Gly Thr	Glu Pro Gln Val Pro Leu	His Leu Pro
820	825	830
Ser Asp Pro Arg Ser Ser	Phe Ala Phe Pro Pro	Ser Leu Ala Lys Ala
835	840	845
Gly Arg Ser Arg Ser Glu	Ser Ser Ala Asp Leu	Pro Gln Gln Glu
850	855	860
Leu Gln Pro Leu Met Gly His	Lys Asp His Thr His	Leu Ser Pro Gly
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Gly Lys Pro Asn Ser Ser Asn Ser Arg Asp Asp Gly Asn Ser Val  
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ttc ccc gcc aag gcg tcc gcg ccg ggc gcg ggg ccg gcc ggc ggc gag 150  
Phe Pro Ala Lys Ala Ser Ala Pro Gly Ala Gly Pro Ala Ala Ala Glu  
25 30 35  
  
aag cgc ctg ggc acc ccg cgg ggg ggc ggc ggg gcc ggc gcg aag gag 198  
Lys Arg Leu Gly Thr Pro Pro Gly Gly Gly Ala Gly Ala Lys Glu  
40 45 50  
  
cac ggc aac tcc gtg tgc ttc aag gtg gac ggc ggt ggc ggc gag gag 246  
His Gly Asn Ser Val Cys Phe Lys Val Asp Gly Gly Gly Glu Glu  
55 60 65  
  
ccg gcg ggg ggc ttc gaa gac gcc gag ggg ccc cgg cgg cag tac ggc 294  
Pro Ala Gly Phe Glu Asp Ala Glu Gly Pro Arg Arg Gln Tyr Gly  
70 75 80  
  
ttc atg cag agg cag ttc acc tcc atg ctg cag ccc ggg gtc aac aaa 342  
Phe Met Gln Arg Gln Phe Thr Ser Met Leu Gln Pro Gly Val Asn Lys  
85 90 95 100  
  
ttc tcc ctc cgc atg ttt ggg agc cag aag gcg gtg gaa aag gag cag 390  
Phe Ser Leu Arg Met Phe Gly Ser Gln Lys Ala Val Glu Lys Glu Gln  
105 110 115  
  
gaa agg gtt aaa act gca ggc ttc tgg att atc cac cct tac agt gat 438  
Glu Arg Val Lys Thr Ala Gly Phe Trp Ile Ile His Pro Tyr Ser Asp  
120 125 130  
  
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Phe Arg Phe Tyr Trp Asp Leu Ile Met Leu Ile Met Met Val Gly Asn  
135 140 145  
  
cta gtc atc ata cca gtt gga atc aca ttc ttt aca gag caa aca aca 534  
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150 155 160  
  
aca cca tgg att att ttc aat gtg gcg tca gat aca gtt ttc cta ttg 582  
Thr Pro Trp Ile Ile Phe Asn Val Ala Ser Asp Thr Val Phe Leu Leu  
165 170 175 180  
  
gac ctg atc atg aat ttt agg act ggg act gtc aat gaa gac agt tct 630  
Asp Leu Ile Met Asn Phe Arg Thr Gly Thr Val Asn Glu Asp Ser Ser  
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Glu Ile Ile Leu Asp Pro Lys Val Ile Lys Met Asn Tyr Leu Lys Ser  
200 205 210  
  
tgg ttt gtg gtt gac ttc atc tca tcc atc cca gtg gat tat atc ttt 726

Trp Phe Val Val Asp Phe Ile Ser Ser Ile Pro Val Asp Tyr Ile Phe	215	220	225	
ctt att gta gaa aaa gga atg gat tct gaa gtt tac aag aca gcc agg				774
Leu Ile Val Glu Lys Gly Met Asp Ser Glu Val Tyr Lys Thr Ala Arg	230	235	240	
gcm ctt cgc att gtg agg ttt aca aaa att ctc agt ctc ttg cgt tta				822
Xaa Leu Arg Ile Val Arg Phe Thr Lys Ile Leu Ser Leu Leu Arg Leu	245	250	255	
tta cga ctt tca agg tta att aga tac ata cat caa tgg gaa gag ata				870
Leu Arg Leu Ser Arg Leu Ile Arg Tyr Ile His Gln Trp Glu Glu Ile	265	270	275	
ttc cac atg aca tat gat ctc gcc agt gca gtg gtg aga att ttt aat				918
Phe His Met Thr Tyr Asp Leu Ala Ser Ala Val Val Arg Ile Phe Asn	280	285	290	
ctc atc ggc atg atg ctg ctc ctg tgc cac tgg gat ggt ttt ctt cag				966
Leu Ile Gly Met Met Leu Leu Leu Cys His Trp Asp Gly Cys Leu Gln	295	300	305	
ttc tta gta cca cta ctg cag gac ttc cca cca gat tgc tgg gtg tct				1014
Phe Leu Val Pro Leu Leu Gln Asp Phe Pro Pro Asp Cys Trp Val Ser	310	315	320	
tta aat gaa atg gtt aat gat tct tgg gga aag cag tat tca tac gca				1062
Leu Asn Glu Met Val Asn Asp Ser Trp Gly Lys Gln Tyr Ser Tyr Ala	325	330	335	
340				
ctc ttc aaa gct atg agt cac atg ctg tgc att ggg tat gga gcc caa				1110
Leu Phe Lys Ala Met Ser His Met Leu Cys Ile Gly Tyr Gly Ala Gln	345	350	355	
gcc cca gtc agc atg tct gac ctc tgg att acc atg ctg agc atg atc				1158
Ala Pro Val Ser Met Ser Asp Leu Trp Ile Thr Met Leu Ser Met Ile	360	365	370	
gtc ggg gcc acc tgc tat gcc atg ttt gtc ggc cat gcc acc gct tta				1206
Val Gly Ala Thr Cys Tyr Ala Met Phe Val Gly His Ala Thr Ala Leu	375	380	385	
atc cag tct ctg gat tct tcg agg cgg cag tat caa gag aag tat aag				1254
Ile Gln Ser Leu Asp Ser Ser Arg Arg Gln Tyr Gln Glu Lys Tyr Lys	390	395	400	
caa gtg gaa caa tac atg tca ttc cat aag tta cca gct gat atg cgt				1302
Gln Val Glu Gln Tyr Met Ser Phe His Lys Leu Pro Ala Asp Met Arg	405	410	415	
420				
cag aag ata cat gat tac tat gaa cac aga tac caa ggc aaa atc ttt				1350
Gln Lys Ile His Asp Tyr Tyr Glu His Arg Tyr Gln Gly Lys Ile Phe	425	430	435	
440	445	450		
gat gag gaa aat att ctc aat gaa ctc aat gat cct ctg aga gag gag				1398
Asp Glu Glu Asn Ile Leu Asn Glu Leu Asn Asp Pro Leu Arg Glu Glu	440	445	450	
ata gtc aac ttc aac ttt cgg aaa ctg gtg gct aca atg cct tta ttt				1446
Ile Val Asn Phe Asn Cys Arg Lys Leu Val Ala Thr Met Pro Leu Phe	455	460	465	

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ggt aaa aaa atg tat ttc att caa cac ggt gtt gct ggt gtc att aca Gly Lys Lys Met Tyr Phe Ile Gln His Gly Val Ala Gly Val Ile Thr 505 510 515	1590
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aca tat tgt cgt ctt tac tca ctt tcc gtg gac aat ttc aac gag gtc Thr Tyr Cys Arg Leu Tyr Ser Leu Ser Val Asp Asn Phe Asn Glu Val 550 555 560	1734
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gct ccc atc aat tat cct caa atg aca acc ctg aat tcc aca tcg tct Ala Pro Ile Asn Tyr Pro Gln Met Thr Thr Leu Asn Ser Thr Ser Ser 630 635 640	1974
act acg acc ccg acc tcc cgc atg agg aca caa tct cca ccg gtg tac Thr Thr Thr Pro Thr Ser Arg Met Arg Thr Gln Ser Pro Pro Val Tyr 645 650 655 660	2022
aca gcg acc agc ctg tct cac agc aac ctg cac tcc ccc agt ccc agc Thr Ala Thr Ser Leu Ser His Ser Asn Leu His Ser Pro Ser Pro Ser 665 670 675	2070
aca cag acc ccc cag cca tca gcc atc ctg tca ccc tgc tcc tac acc Thr Gln Thr Pro Gln Pro Ser Ala Ile Leu Ser Pro Cys Ser Tyr Thr 680 685 690	2118
acc gcg gtc tgc agc cct cct gta cag agc cct ctg gcc gct cga act Thr Ala Val Cys Ser Pro Pro Val Gln Ser Pro Leu Ala Ala Arg Thr 695 700 705	2166
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Phe His Tyr Ala Ser Pro Thr Ala Ser Gln Leu Ser Leu Met Gln Gln			
710	715	720	
cag ccg cag cag cag gta cag cag tcc cag ccg ccg cag act cag cca	2262		
Gln Pro Gln Gln Gln Val Gln Gln Ser Gln Pro Pro Gln Thr Gln Pro			
725	730	735	740
cag cag ccg tcc ccg cag cca cag aca cct ggc agc tcc acg ccg aaa	2310		
Gln Gln Pro Ser Pro Gln Pro Gln Thr Pro Gly Ser Ser Thr Pro Lys			
745	750	755	
aat gaa gtg cac aag agc acg cag gcg ctt cac aac acc aac ctg acc	2358		
Asn Glu Val His Lys Ser Thr Gln Ala Leu His Asn Thr Asn Leu Thr			
760	765	770	
cgg gaa gtc agg cca ctc tcc gcc tcg cag ccc tcg ctg ccc cat gag	2406		
Arg Glu Val Arg Pro Leu Ser Ala Ser Gln Pro Ser Leu Pro His Glu			
775	780	785	
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Val Ser Thr Leu Ile Ser Arg Pro His Pro Thr Val Gly Glu Ser Leu			
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Ala Ser Ile Pro Gln Pro Val Thr Ala Val Pro Gly Thr Gly Leu Gln			
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gca ggg ggc agg agc act gtc ccg cag cgc gtc acc ctc ttc cga cag	2550		
Ala Gly Gly Arg Ser Thr Val Pro Gln Arg Val Thr Leu Phe Arg Gln			
825	830	835	
atg tcg tcg gga gcc atc ccc ccg aac cga gga gtc cct cca gca ccc	2598		
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cct cca cca gca gct ctt cca aga gaa tct tcc tca gtc tta aac	2646		
Pro Pro Pro Ala Ala Leu Pro Arg Glu Ser Ser Val Leu Asn			
855	860	865	
aca gac cca gac gca gaa aag cca cga ttt gct tca aat tta tga	2691		
Thr Asp Pro Asp Ala Glu Lys Pro Arg Phe Ala Ser Asn Leu *			
870	875	880	
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tagaaaagca taacaatca ttaattgcct atcttataat tcctataagg ctgacttgg	3831		

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tttaataat tattttaaaa ccacagctt atttggagtt aagtgttgc tggcttca 3951  
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35 40 45  
Gly Ala Lys Glu His Gly Asn Ser Val Cys Phe Lys Val Asp Gly Gly  
50 55 60  
Gly Gly Glu Glu Pro Ala Gly Gly Phe Glu Asp Ala Glu Gly Pro Arg  
65 70 75 80  
Arg Gln Tyr Gly Phe Met Gln Arg Gln Phe Thr Ser Met Leu Gln Pro  
85 90 95  
Gly Val Asn Lys Phe Ser Leu Arg Met Phe Gly Ser Gln Lys Ala Val  
100 105 110  
Glu Lys Glu Gln Glu Arg Val Lys Thr Ala Gly Phe Trp Ile Ile His  
115 120 125  
Pro Tyr Ser Asp Phe Arg Phe Tyr Trp Asp Leu Ile Met Leu Ile Met  
130 135 140  
Met Val Gly Asn Leu Val Ile Ile Pro Val Gly Ile Thr Phe Phe Thr  
145 150 155 160  
Glu Gln Thr Thr Pro Trp Ile Ile Phe Asn Val Ala Ser Asp Thr  
165 170 175  
Val Phe Leu Leu Asp Leu Ile Met Asn Phe Arg Thr Gly Thr Val Asn  
180 185 190  
Glu Asp Ser Ser Glu Ile Ile Leu Asp Pro Lys Val Ile Lys Met Asn  
195 200 205  
Tyr Leu Lys Ser Trp Phe Val Val Asp Phe Ile Ser Ser Ile Pro Val  
210 215 220  
Asp Tyr Ile Phe Leu Ile Val Glu Lys Gly Met Asp Ser Glu Val Tyr  
225 230 235 240  
Lys Thr Ala Arg Xaa Leu Arg Ile Val Arg Phe Thr Lys Ile Leu Ser  
245 250 255  
Leu Leu Arg Leu Leu Arg Leu Ser Arg Leu Ile Arg Tyr Ile His Gln  
260 265 270  
Trp Glu Glu Ile Phe His Met Thr Tyr Asp Leu Ala Ser Ala Val Val  
275 280 285  
Arg Ile Phe Asn Leu Ile Gly Met Met Leu Leu Leu Cys His Trp Asp  
290 295 300  
Gly Cys Leu Gln Phe Leu Val Pro Leu Leu Gln Asp Phe Pro Pro Asp  
305 310 315 320  
Cys Trp Val Ser Leu Asn Glu Met Val Asn Asp Ser Trp Gly Lys Gln  
325 330 335  
Tyr Ser Tyr Ala Leu Phe Lys Ala Met Ser His Met Leu Cys Ile Gly  
340 345 350  
Tyr Gly Ala Gln Ala Pro Val Ser Met Ser Asp Leu Trp Ile Thr Met  
355 360 365

Leu Ser Met Ile Val Gly Ala Thr Cys Tyr Ala Met Phe Val Gly His  
 370 375 380  
 Ala Thr Ala Leu Ile Gln Ser Leu Asp Ser Ser Arg Arg Gln Tyr Gln  
 385 390 395 400  
 Glu Lys Tyr Lys Gln Val Glu Gln Tyr Met Ser Phe His Lys Leu Pro  
 405 410 415  
 Ala Asp Met Arg Gln Lys Ile His Asp Tyr Tyr Glu His Arg Tyr Gln  
 420 425 430  
 Gly Lys Ile Phe Asp Glu Glu Asn Ile Leu Asn Glu Leu Asn Asp Pro  
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 Met Pro Leu Phe Ala Asn Ala Asp Pro Asn Phe Val Thr Ala Met Leu  
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 Ser Lys Leu Arg Phe Glu Val Phe Gln Pro Gly Asp Tyr Ile Ile Arg  
 485 490 495  
 Glu Gly Ala Val Gly Lys Lys Met Tyr Phe Ile Gln His Gly Val Ala  
 500 505 510  
 Gly Val Ile Thr Lys Ser Ser Lys Glu Met Lys Leu Thr Asp Gly Ser  
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 Tyr Phe Gly Glu Ile Cys Leu Leu Thr Lys Gly Arg Arg Thr Ala Ser  
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 Val Arg Ala Asp Thr Tyr Cys Arg Leu Tyr Ser Leu Ser Val Asp Asn  
 545 550 555 560  
 Phe Asn Glu Val Leu Glu Glu Tyr Pro Met Met Arg Arg Ala Phe Glu  
 565 570 575  
 Thr Val Ala Ile Asp Arg Leu Asp Arg Ile Gly Lys Lys Asn Ser Ile  
 580 585 590  
 Leu Leu Gln Lys Phe Gln Lys Asp Leu Asn Thr Gly Val Phe Asn Asn  
 595 600 605  
 Gln Glu Asn Glu Ile Leu Lys Gln Ile Val Lys His Asp Arg Glu Met  
 610 615 620  
 Val Gln Ala Ile Ala Pro Ile Asn Tyr Pro Gln Met Thr Thr Leu Asn  
 625 630 635 640  
 Ser Thr Ser Ser Thr Thr Pro Thr Ser Arg Met Arg Thr Gln Ser  
 645 650 655  
 Pro Pro Val Tyr Thr Ala Thr Ser Leu Ser His Ser Asn Leu His Ser  
 660 665 670  
 Pro Ser Pro Ser Thr Gln Thr Pro Gln Pro Ser Ala Ile Leu Ser Pro  
 675 680 685  
 Cys Ser Tyr Thr Thr Ala Val Cys Ser Pro Pro Val Gln Ser Pro Leu  
 690 695 700  
 Ala Ala Arg Thr Phe His Tyr Ala Ser Pro Thr Ala Ser Gln Leu Ser  
 705 710 715 720  
 Leu Met Gln Gln Gln Pro Gln Gln Gln Val Gln Gln Ser Gln Pro Pro  
 725 730 735  
 Gln Thr Gln Pro Gln Gln Pro Ser Pro Gln Pro Gln Thr Pro Gly Ser  
 740 745 750  
 Ser Thr Pro Lys Asn Glu Val His Lys Ser Thr Gln Ala Leu His Asn  
 755 760 765  
 Thr Asn Leu Thr Arg Glu Val Arg Pro Leu Ser Ala Ser Gln Pro Ser  
 770 775 780  
 Leu Pro His Glu Val Ser Thr Leu Ile Ser Arg Pro His Pro Thr Val  
 785 790 795 800  
 Gly Glu Ser Leu Ala Ser Ile Pro Gln Pro Val Thr Ala Val Pro Gly  
 805 810 815  
 Thr Gly Leu Gln Ala Gly Gly Arg Ser Thr Val Pro Gln Arg Val Thr  
 820 825 830  
 Leu Phe Arg Gln Met Ser Ser Gly Ala Ile Pro Pro Asn Arg Gly Val  
 835 840 845  
 Pro Pro Ala Pro Pro Pro Pro Ala Ala Ala Leu Pro Arg Glu Ser Ser  
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 Arg Arg Ala Pro Leu Arg Arg Gly Val Gly Ser Ser Pro Arg Ala Arg  
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 25 30 35  
 197  
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 Trp Ala Gly Ala Ser Asp Gly Gly Gly Glu Ala Arg Ala Met Asp  
 40 45 50  
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 Glu Glu Ile Val Ser Glu Lys Gln Ala Glu Glu Ser His Arg Gln Asp  
 55 60 65 70  
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 agc gcc aac ctg ctc atc ttc atc ctg ctg ctc acc ctc acc att ctc  
 Ser Ala Asn Leu Leu Ile Phe Ile Leu Leu Leu Thr Leu Thr Ile Leu  
 75 80 85  
 341  
 aca atc tgg ctc ttc aag cac cgc cgg gcc cgc ttc ctg cac gaa acc  
 Thr Ile Trp Leu Phe Lys His Arg Arg Ala Arg Phe Leu His Glu Thr  
 90 95 100  
 389  
 ggc ctg gct atg att tat ggt ctt ttg gtg ggc ctt gtg ctt cgg tat  
 Gly Leu Ala Met Ile Tyr Gly Leu Leu Val Gly Leu Val Leu Arg Tyr  
 105 110 115  
 437  
 ggc att cat gtt ccg agt gat gta aat aat gtg acc ctg agc tgt gaa  
 Gly Ile His Val Pro Ser Asp Val Asn Asn Val Thr Leu Ser Cys Glu  
 120 125 130  
 485  
 gtg cag tca agt cca act acc tta ctg gtt act ttt gat cca gaa gta  
 Val Gln Ser Ser Pro Thr Thr Leu Leu Val Thr Phe Asp Pro Glu Val  
 135 140 145 150  
 533  
 ttt ttc aac ata tta ctt cct atc ata ttt tat gca ggt tat agc  
 Phe Phe Asn Ile Leu Leu Pro Pro Ile Ile Phe Tyr Ala Gly Tyr Ser  
 155 160 165  
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 ctg aaa agg aga cat ttt ttt cga aat ctt ggg tct atc cta gca tac  
 Leu Lys Arg Arg His Phe Phe Arg Asn Leu Gly Ser Ile Leu Ala Tyr

170	175	180	
gct ttt ctt gga aca gca att tct tgt ttc gtt att ggg tca ata atg Ala Phe Leu Gly Thr Ala Ile Ser Cys Phe Val Ile Gly Ser Ile Met 185	190	195	629
tat ggc tgt gta acg ctg atg aag gta acg gga caa ctt gca gga gat Tyr Gly Cys Val Thr Leu Met Lys Val Thr Gly Gln Leu Ala Gly Asp 200	205	210	677
ttt tac ttt aca gat tgc cta ctg ttt ggt gcc att gta tca gca act Phe Tyr Phe Thr Asp Cys Leu Leu Phe Gly Ala Ile Val Ser Ala Thr 215	220	225	725
gat cca gtg act gtt ctt gct ata ttc cac gag ctt caa gtt gat gtt Asp Pro Val Thr Val Leu Ala Ile Phe His Glu Leu Gln Val Asp Val 235	240	245	773
gaa ctc tat gca ctt ctt ttt ggt gaa agt gtc ctc aat gat gct gtt Glu Leu Tyr Ala Leu Leu Phe Gly Glu Ser Val Leu Asn Asp Ala Val 250	255	260	821
gcc ata gtg ctg tcc tcc tca ata gtg gca tac cag cca gct gga gac Ala Ile Val Leu Ser Ser Ile Val Ala Tyr Gln Pro Ala Gly Asp 265	270	275	869
aac agt cac acc ttt gat gtc aca gcg atg ttc aag tct att ggg atc Asn Ser His Thr Phe Asp Val Thr Ala Met Phe Lys Ser Ile Gly Ile 280	285	290	917
ttc ctt gga atc ttc agt gga tct ttt gca atg ggt gct gct act gga Phe Leu Gly Ile Phe Ser Gly Ser Phe Ala Met Gly Ala Ala Thr Gly 295	300	305	965
gtg gtg aca gct tta gtg aca aag ttc acc aaa tta cgg gag ttc cag Val Val Thr Ala Leu Val Thr Lys Phe Thr Lys Leu Arg Glu Phe Gln 315	320	325	1013
ttg ttg gag aca ggc ctg ttc ttg atg tcc tgg agt acc ttc ctc Leu Leu Glu Thr Gly Leu Phe Phe Leu Met Ser Trp Ser Thr Phe Leu 330	335	340	1061
ttg gct gaa gca tgg ggc ttc aca ggt gta gtt gca gta ttg ttt tgt Leu Ala Glu Ala Trp Gly Phe Thr Gly Val Val Ala Val Leu Phe Cys 345	350	355	1109
ggc atc aca caa gca cat tat acg tat aat aat ttg tcc acg gag tct Gly Ile Thr Gln Ala His Tyr Thr Tyr Asn Asn Leu Ser Thr Glu Ser 360	365	370	1157
cag cat aga act aaa cag ttg ttt gag ctt ctc aat ttc ttg gca gag Gln His Arg Thr Lys Gln Leu Phe Glu Leu Leu Asn Phe Leu Ala Glu 375	380	385	1205
aat ttc atc ttc tcc tac atg ggg ctg aca ctg ttc acc ttc cag aac Asn Phe Ile Phe Ser Tyr Met Gly Leu Thr Leu Phe Thr Phe Gln Asn 395	400	405	1253
cat gtc ttt aac cca aca ttt gta gta gga gca ttt gtt gct att ttc His Val Phe Asn Pro Thr Phe Val Val Gly Ala Phe Val Ala Ile Phe 410	415	420	1301

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Leu Gly Arg Ala Ala Asn Ile Tyr Pro Leu Ser Leu Leu Asn Leu		
425	430	435
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Gly Arg Arg Ser Lys Ile Gly Ser Asn Phe Gln His Met Met Met Phe		
440	445	450
gct ggc ctt cgt ggt gca atg gca ttt gcc ttg gcc att cga gat act		1445
Ala Gly Leu Arg Gly Ala Met Ala Phe Ala Leu Ala Ile Arg Asp Thr		
455	460	465
470		
gcc act tat gca cgg caa atg atg ttc agc acc acg ctt ctg att gtg		1493
Ala Thr Tyr Ala Arg Gln Met Met Phe Ser Thr Thr Leu Leu Ile Val		
475	480	485
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Phe Phe Thr Val Trp Val Phe Gly Gly Thr Thr Ala Met Leu Ser		
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Cys Leu His Ile Arg Val Gly Val Asp Ser Asp Gln Glu His Leu Gly		
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Val Pro Glu Asn Glu Arg Arg Thr Thr Lys Ala Glu Ser Ala Trp Leu		
520	525	530
ttc cgg atg tgg tac aac ttt gat cat aac tat ctg aag cct ctg ctg		1685
Phe Arg Met Trp Tyr Asn Phe Asp His Asn Tyr Leu Lys Pro Leu Leu		
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550		
acc cac agc ggg cct ccg ctg aca aca aca ctc cct gcc tgc tgt gga		1733
Thr His Ser Gly Pro Pro Leu Thr Thr Leu Pro Ala Cys Cys Gly		
555	560	565
ccc atc gcc agg tgc ctc acc agc ccc cag gct tac gaa aac cag gaa		1781
Pro Ile Ala Arg Cys Leu Thr Ser Pro Gln Ala Tyr Glu Asn Gln Glu		
570	575	580
cag ttg aaa gat gat gat tct gat ctt att ctc aat gat ggt gac atc		1829
Gln Leu Lys Asp Asp Asp Ser Asp Leu Ile Leu Asn Asp Gly Asp Ile		
585	590	595
agt ttg aca tat gga gat tct act gtg aac act gaa ccg gcc aca tcc		1877
Ser Leu Thr Tyr Gly Asp Ser Thr Val Asn Thr Glu Pro Ala Thr Ser		
600	605	610
agc gcc cca agg aga ttt atg gga aac agt tct gaa gat gcc ttg gat		1925
Ser Ala Pro Arg Arg Phe Met Gly Asn Ser Ser Glu Asp Ala Leu Asp		
615	620	625
630		
cgg gag ctt gca ttt ggg gac cat gaa ctg gtc att cga gga aca cgc		1973
Arg Glu Leu Ala Phe Gly Asp His Glu Leu Val Ile Arg Gly Thr Arg		
635	640	645
ctg gtt ctt cca atg gat gat tct gaa ccc ccg cta aat ttg tta gat		2021
Leu Val Leu Pro Met Asp Asp Ser Glu Pro Pro Leu Asn Leu Leu Asp		
650	655	660
aat acg aga cat ggt cca gcc taa gcttactaat actcacttag tgatttgtaa	2075	
Asn Thr Arg His Gly Pro Ala *		

aatttgcaca tggattgtg aagaaatgg tactaccaa aagtcccagt gcatgtctct 2135  
 gaatgtgtaa gctatataaa tgctatttat atggcataga aagaatataa atatccgtta 2195  
 cacggcagat tgtgaacaaa ctatattcct ttaagtttc ctgggtgcac tctgttagact 2255  
 gnatctgttt taggaagttt ctttcacagt gatgttggt gttctgttag tttatgtct 2315  
 cagttaaagt gtaaaaagtg acggatttc tctttcttaa acttaccta cacttaacca 2375  
 gagtaccgt tctcgtgtat tgaattaatt tttttgtgtg cttaggggagg gagagtgagg 2435  
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 acatgatgtt cagatttcc agtggaaaaat acccttcttgc acaaaacatg tactactct 3575  
 ccgaaaggca tctatctgtt ctatttgc aacttcttgc gatttttaggg gaattctaat 3635  
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 gacttcctg ctatgcagga atccctccca tgacgtgtat gtttacatg atgtgtgcct 3755  
 cttcacgcag taaatagttt cttgttaatg tatgttttaggg gagtttgcac gtcagtgtca 3815  
 cttacccaca aagttatca agtggaaaaa gtttataat aatttacaa ctacccccc 3875  
 tattctgtcg gtttactgac ctactttat gtaatactt cgcacatgacaa attcagtaac 3935  
 tcgtctattt cagcatgcat aagacttttca actaggaaa ctgataaaagc ttgactcaac 3995  
 taaatctgcc ttcatactt atcaaggggaa accaaggcttgc ctgtgttgc atcagcatct 4055  
 ggaagacttt cctctccctt aatctgtgtt cacatcttca agcaagggaa aaaaaacaaa 4115  
 ctctgctcag acgcctatgtt aacaccttgc tgaacttgc tgaacttgc tctgacttgc 4175  
 catcatgcac aagttagaact gcttgcgttgc ttgttttgc gtttgcgttgc gacccatcgc 4235  
 gtttgcgttgc ttgttgcgttgc ttgttttgc gtttgcgttgc gacccatcgc 4295  
 tcctagttgtt ccgtgtttgg caatgtgttgc tttaatgttgc agacttttgc ttgttttgc 4355  
 ttttttgcgtt tctctggagt acttggacag atgttataat gtttgcgttgc gtttgcgttgc 4415  
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 <212> PRT  
 <213> Homo Sapiens

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 Ala Val Gly Val Phe Asp Trp Ala Gly Ala Ser Asp Gly Gly Gly  
 35 40 45  
 Glu Ala Arg Ala Met Asp Glu Glu Ile Val Ser Glu Lys Gln Ala Glu  
 50 55 60  
 Glu Ser His Arg Gln Asp Ser Ala Asn Leu Leu Ile Phe Ile Leu Leu  
 65 70 75 80  
 Leu Thr Leu Thr Ile Leu Thr Ile Trp Leu Phe Lys His Arg Arg Ala  
 85 90 95  
 Arg Phe Leu His Glu Thr Gly Leu Ala Met Ile Tyr Gly Leu Leu Val

100	105	110
Gly Leu Val Leu Arg Tyr Gly Ile His Val Pro Ser Asp Val Asn Asn		
115	120	125
Val Thr Leu Ser Cys Glu Val Gln Ser Ser Pro Thr Thr Leu Leu Val		
130	135	140
Thr Phe Asp Pro Glu Val Phe Phe Asn Ile Leu Leu Pro Pro Ile Ile		
145	150	155
Phe Tyr Ala Gly Tyr Ser Leu Lys Arg Arg His Phe Phe Arg Asn Leu		
165	170	175
Gly Ser Ile Leu Ala Tyr Ala Phe Leu Gly Thr Ala Ile Ser Cys Phe		
180	185	190
Val Ile Gly Ser Ile Met Tyr Gly Cys Val Thr Leu Met Lys Val Thr		
195	200	205
Gly Gln Leu Ala Gly Asp Phe Tyr Phe Thr Asp Cys Leu Leu Phe Gly		
210	215	220
Ala Ile Val Ser Ala Thr Asp Pro Val Thr Val Leu Ala Ile Phe His		
225	230	235
Glu Leu Gln Val Asp Val Glu Leu Tyr Ala Leu Leu Phe Gly Glu Ser		
245	250	255
Val Leu Asn Asp Ala Val Ala Ile Val Leu Ser Ser Ser Ile Val Ala		
260	265	270
Tyr Gln Pro Ala Gly Asp Asn Ser His Thr Phe Asp Val Thr Ala Met		
275	280	285
Phe Lys Ser Ile Gly Ile Phe Leu Gly Ile Phe Ser Gly Ser Phe Ala		
290	295	300
Met Gly Ala Ala Thr Gly Val Val Thr Ala Leu Val Thr Lys Phe Thr		
305	310	315
Lys Leu Arg Glu Phe Gln Leu Leu Glu Thr Gly Leu Phe Phe Leu Met		
325	330	335
Ser Trp Ser Thr Phe Leu Leu Ala Glu Ala Trp Gly Phe Thr Gly Val		
340	345	350
Val Ala Val Leu Phe Cys Gly Ile Thr Gln Ala His Tyr Thr Tyr Asn		
355	360	365
Asn Leu Ser Thr Glu Ser Gln His Arg Thr Lys Gln Leu Phe Glu Leu		
370	375	380
Leu Asn Phe Leu Ala Glu Asn Phe Ile Phe Ser Tyr Met Gly Leu Thr		
385	390	395
Leu Phe Thr Phe Gln Asn His Val Phe Asn Pro Thr Phe Val Val Gly		
405	410	415
Ala Phe Val Ala Ile Phe Leu Gly Arg Ala Ala Asn Ile Tyr Pro Leu		
420	425	430
Ser Leu Leu Leu Asn Leu Gly Arg Arg Ser Lys Ile Gly Ser Asn Phe		
435	440	445
Gln His Met Met Met Phe Ala Gly Leu Arg Gly Ala Met Ala Phe Ala		
450	455	460
Leu Ala Ile Arg Asp Thr Ala Thr Tyr Ala Arg Gln Met Met Phe Ser		
465	470	475
Thr Thr Leu Leu Ile Val Phe Phe Thr Val Trp Val Phe Gly Gly		
485	490	495
Thr Thr Ala Met Leu Ser Cys Leu His Ile Arg Val Gly Val Asp Ser		
500	505	510
Asp Gln Glu His Leu Gly Val Pro Glu Asn Glu Arg Arg Thr Thr Lys		
515	520	525
Ala Glu Ser Ala Trp Leu Phe Arg Met Trp Tyr Asn Phe Asp His Asn		
530	535	540
Tyr Leu Lys Pro Leu Leu Thr His Ser Gly Pro Pro Leu Thr Thr Thr		
545	550	555
Leu Pro Ala Cys Cys Gly Pro Ile Ala Arg Cys Leu Thr Ser Pro Gln		
565	570	575
Ala Tyr Glu Asn Gln Glu Gln Leu Lys Asp Asp Asp Ser Asp Leu Ile		
580	585	590
Leu Asn Asp Gly Asp Ile Ser Leu Thr Tyr Gly Asp Ser Thr Val Asn		

595	600	605
Thr Glu Pro Ala Thr Ser Ser Ala Pro Arg Arg Phe Met Gly Asn Ser		
610	615	620
Ser Glu Asp Ala Leu Asp Arg Glu Leu Ala Phe Gly Asp His Glu Leu		
625	630	635
Val Ile Arg Gly Thr Arg Leu Val Leu Pro Met Asp Asp Ser Glu Pro		
645	650	655
Pro Leu Asn Leu Leu Asp Asn Thr Arg His Gly Pro Ala		
660	665	

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 <212> DNA  
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<220>  
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 <222> (205) ... (2493)

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 agctcacaga cacagggaaac acaggactgc tattctgctc tcctgcccac ggtgatctgg 180  
 tgccagctgg tggAACAGTG ggtg atg gcg tcc ctg ctg caa gac cag ctg 231  
 Met Ala Ser Leu Leu Gln Asp Gln Leu  
 1 5

acc act gat cag gac ttg ctg atg cag gaa ggc atg ccg atg cgc 279  
 Thr Thr Asp Gln Asp Leu Leu Met Gln Glu Gly Met Pro Met Arg  
 10 15 20 25

aag gtg agg tcc aaa agc tgg aag aag cta aga tac ttc aga ctt cag 327  
 Lys Val Arg Ser Lys Ser Trp Lys Lys Leu Arg Tyr Phe Arg Leu Gln  
 30 35 40

aat gac ggc atg aca gtc tgg cat gca cgg cag gcc agg ggc agt gcc 375  
 Asn Asp Gly Met Thr Val Trp His Ala Arg Gln Ala Arg Gly Ser Ala  
 45 50 55

aag ccc agc ttc tca atc tct gat gtg gag aca ata cgt aat ggc cat 423  
 Lys Pro Ser Phe Ser Ile Ser Asp Val Glu Thr Ile Arg Asn Gly His  
 60 65 70

gat tcc gag ttg ctg cgt agc ctg gca gag gag ctc ccc ctg gag cag 471  
 Asp Ser Glu Leu Leu Arg Ser Leu Ala Glu Glu Leu Pro Leu Glu Gln  
 75 80 85

ggc ttc acc att gtc ttc cat ggc cgc cgc tcc aac ctg gac ctg atg 519  
 Gly Phe Thr Ile Val Phe His Gly Arg Arg Ser Asn Leu Asp Leu Met  
 90 95 100 105

gcc aac agt gtt gag gag gcc cag ata tgg atg cga ggg ctc cag ctg 567  
 Ala Asn Ser Val Glu Glu Ala Gln Ile Trp Met Arg Gly Leu Gln Leu  
 110 115 120

ttg gtg gat ctt gtc acc agc atg gac cat cag gag cgc ctg gac caa 615  
 Leu Val Asp Leu Val Thr Ser Met Asp His Gln Glu Arg Leu Asp Gln  
 125 130 135

tgg ctg agc gat tgg ttt caa cgt gga gac aaa aat cag gat ggt aag 663  
 Trp Leu Ser Asp Trp Phe Gln Arg Gly Asp Lys Asn Gln Asp Gly Lys

140	145	150	
atg agt ttc caa gaa gtt cag cgg tta ttg cac cta atg aat gtg gaa Met Ser Phe Gln Glu Val Gln Arg Leu Leu His Leu Met Asn Val Glu 155	160	165	711
atg gac caa gaa tat gcc ttc agt ctt ttt cag gca gca gac acg tcc Met Asp Gln Glu Tyr Ala Phe Ser Leu Phe Gln Ala Ala Asp Thr Ser 170	175	180	759
cag tct gga acc ctg gaa gga gaa gaa ttc gta cag ttc tat aag gca Gln Ser Gly Thr Leu Glu Gly Glu Phe Val Gln Phe Tyr Lys Ala 190	195	200	807
ttg act aaa cgt gct gag gtg cag gaa ctg ttt gaa agt ttt tca gct Leu Thr Lys Arg Ala Glu Val Gln Glu Leu Phe Glu Ser Phe Ser Ala 205	210	215	855
gat ggg cag aag ctg act ctg ctg gaa ttt ttg gat ttc ctc caa gag Asp Gly Gln Lys Leu Thr Leu Leu Glu Phe Leu Asp Phe Leu Gln Glu 220	225	230	903
gag cag aag gag aga gac tgc acc tct gag ctt gct ctg gaa ctc att Glu Gln Lys Glu Arg Asp Cys Thr Ser Glu Leu Ala Leu Glu Leu Ile 235	240	245	951
gac cgc tat gaa cct tca gac agt ggc aaa ctg cgg cat gtg ctg agt Asp Arg Tyr Glu Pro Ser Asp Ser Gly Lys Leu Arg His Val Leu Ser 250	255	260	999
atg gat ggc ttc ctc agc tac ctc tgc tct aag gat gga gac atc ttc Met Asp Gly Phe Leu Ser Tyr Leu Cys Ser Lys Asp Gly Asp Ile Phe 270	275	280	1047
aac cca gcc tgc ctc ccc atc tat cag gat atg act caa ccc ctg aac Asn Pro Ala Cys Leu Pro Ile Tyr Gln Asp Met Thr Gln Pro Leu Asn 285	290	295	1095
cac tac ttc atc tgc tct tct cat aac acc tac cta gtg ggg gac cag His Tyr Phe Ile Cys Ser Ser His Asn Thr Tyr Leu Val Gly Asp Gln 300	305	310	1143
ctt tgc ggc cag agc agc gtc gag gga tat ata cgg gcc ctg aag cgg Leu Cys Gly Gln Ser Ser Val Glu Gly Tyr Ile Arg Ala Leu Lys Arg 315	320	325	1191
ggg tgc cgc tgc gtg gag gtg gat gta tgg gat gga cct agc ggg gaa Gly Cys Arg Cys Val Glu Val Asp Val Trp Asp Gly Pro Ser Gly Glu 330	335	340	1239
cct gtc gtt tac cac gga cac acc ctg acc tcc cgc atc ctg ttc aaa Pro Val Val Tyr His Gly His Thr Leu Thr Ser Arg Ile Leu Phe Lys 350	355	360	1287
gat gtc gtg gcc aca gta gca cag tat gcc ttc cag aca tca gac tac Asp Val Val Ala Thr Val Ala Gln Tyr Ala Phe Gln Thr Ser Asp Tyr 365	370	375	1335
cca gtc atc ttg tcc ctg gag acc cac tgc agc tgg gag cag cag cag Pro Val Ile Leu Ser Leu Glu Thr His Cys Ser Trp Glu Gln Gln Gln 380	385	390	1383

acc atg gcc cgt cat ctg act gag atc ctg ggg gag cag ctg ctg agc Thr Met Ala Arg His Leu Thr Glu Ile Leu Gly Glu Gln Leu Leu Ser 395 400 405	1431
acc acc ttg gat ggg gtg ctg ccc act cag ctg ccc tcg cct gag gag Thr Thr Leu Asp Gly Val Leu Pro Thr Gln Leu Pro Ser Pro Glu Glu 410 415 420 425	1479
ctt cgg agg aag atc ctg gtg aag ggg aag aag tta aca ctt gag gaa Leu Arg Arg Lys Ile Leu Val Lys Gly Lys Lys Leu Thr Leu Glu Glu 430 435 440	1527
gac ctg gaa tat gag gaa gag gaa gca gaa cct gag ttg gaa gag tca Asp Leu Glu Tyr Glu Glu Glu Ala Glu Pro Glu Leu Glu Glu Ser 445 450 455	1575
gaa ttg gcg ctg gag tcc cag ttt gag act gag cct gag ccc cag gag Glu Leu Ala Leu Glu Ser Gln Phe Glu Thr Glu Pro Glu Pro Gln Glu 460 465 470	1623
cag aac ctt cag aat aag gac aaa aag aag aaa tcc aag ccc atc ttg Gln Asn Leu Gln Asn Lys Asp Lys Lys Ser Lys Pro Ile Leu 475 480 485	1671
tgt cca gcc ctc tct tcc ctg gtt atc tac ttg aag tct gtc tca ttc Cys Pro Ala Leu Ser Ser Leu Val Ile Tyr Leu Lys Ser Val Ser Phe 490 495 500 505	1719
cgc agc ttc aca cat tca aag gag cac tac cac ttc tac gag ata tca Arg Ser Phe Thr His Ser Lys Glu His Tyr His Phe Tyr Glu Ile Ser 510 515 520	1767
tct ttc tct gaa acc aag gcc aag cgc ctc atc aag gag gct ggc aat Ser Phe Ser Glu Thr Lys Ala Lys Arg Leu Ile Lys Glu Ala Gly Asn 525 530 535	1815
gag ttt gtg cag cac aat act tgg cag tta agc cgt gtg tat ccc agc Glu Phe Val Gln His Asn Thr Trp Gln Leu Ser Arg Val Tyr Pro Ser 540 545 550	1863
ggc ctg agg aca gac tct tcc aac tac aac ccc cag gaa ctc tgg aat Gly Leu Arg Thr Asp Ser Ser Asn Tyr Asn Pro Gln Glu Leu Trp Asn 555 560 565	1911
gca ggc tgc cag atg gtg gcc atg aat atg cag act gca ggg ctt gaa Ala Gly Cys Gln Met Val Ala Met Asn Met Gln Thr Ala Gly Leu Glu 570 575 580 585	1959
atg gac atc tgt gat ggg cat ttc cgc cag aat ggc ggc tgt ggc tat Met Asp Ile Cys Asp Gly His Phe Arg Gln Asn Gly Gly Cys Gly Tyr 590 595 600	2007
gtg ctg aag cca gac ttc ctg cgt gat atc cag agt tct ttc cac cct Val Leu Lys Pro Asp Phe Leu Arg Asp Ile Gln Ser Ser Phe His Pro 605 610 615	2055
gag aag ccc atc agc cct ttc aaa gcc cag act ctc tta atc cag gtg Glu Lys Pro Ile Ser Pro Phe Lys Ala Gln Thr Leu Leu Ile Gln Val 620 625 630	2103
atc agc ggt cag caa ctc ccc aaa gtg gac aag acc aaa gag ggg tcc Ile Ser Gly Gln Gln Leu Pro Lys Val Asp Lys Thr Lys Glu Gly Ser	2151

635

640

645

att	gtg	gat	cca	ctg	gtg	aaa	gtg	cag	atc	ttt	ggc	gtt	cgt	cta	gac	2199
Ile	Val	Asp	Pro	Leu	Val	Lys	Val	Gln	Ile	Phe	Gly	Val	Arg	Leu	Asp	
650															665	
655																
aca	gca	cgg	cag	gag	acc	aac	tat	gtg	gag	aac	aat	ggt	ttt	aat	cca	2247
Thr	Ala	Arg	Gln	Glu	Thr	Asn	Tyr	Val	Glu	Asn	Asn	Gly	Phe	Asn	Pro	
670															680	
675																
tac	tgg	ggg	cag	aca	cta	tgt	ttc	cgg	gtg	ctg	gtg	cct	gaa	ctt	gcc	2295
Tyr	Trp	Gly	Gln	Thr	Leu	Cys	Phe	Arg	Val	Leu	Val	Pro	Glu	Leu	Ala	
685															695	
690																
atg	ctg	cgt	ttt	gtg	gta	atg	gat	tat	gac	tgg	aaa	tcc	cga	aat	gac	2343
Met	Leu	Arg	Phe	Val	Val	Met	Asp	Tyr	Asp	Trp	Lys	Ser	Arg	Asn	Asp	
700															710	
705																
ttt	att	ggt	cag	tac	acc	ctg	cct	tgg	acc	tgc	atg	caa	caa	ggt	tac	2391
Phe	Ile	Gly	Gln	Tyr	Thr	Leu	Pro	Trp	Thr	Cys	Met	Gln	Gln	Gly	Tyr	
715															725	
720																
cgc	cac	att	cac	ctg	ctg	tcc	aaa	gat	ggc	atc	agc	ctc	cgc	cca	gct	2439
Arg	His	Ile	His	Leu	Leu	Ser	Lys	Asp	Gly	Ile	Ser	Leu	Arg	Pro	Ala	
730															745	
735																
tcc	atc	ttt	gtg	tat	atc	tgc	atc	cag	gaa	ggc	ctg	gag	ggg	gat	gag	2487
Ser	Ile	Phe	Val	Tyr	Ile	Cys	Ile	Gln	Glu	Gly	Leu	Glu	Gly	Asp	Glu	
750															760	
755																
tcc	tga	ggggcatt	tcacggaaag	ggttggat	ctggcttag	acggggagaa										2543
Ser	*															

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 Lys Lys Leu Arg Tyr Phe Arg Leu Gln Asn Asp Gly Met Thr Val Trp  
 35 40 45  
 His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro Ser Phe Ser Ile Ser  
 50 55 60  
 Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser Glu Leu Leu Arg Ser  
 65 70 75 80  
 Leu Ala Glu Glu Leu Pro Leu Glu Gln Gly Phe Thr Ile Val Phe His

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Gly Arg Arg Ser Asn Leu Asp Leu Met	Ala Asn Ser Val	Glu Glu Ala
100	105	110
Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val Asp	Leu Val Thr Ser	
115	120	125
Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu	Ser Asp Trp Phe Gln	
130	135	140
Arg Gly Asp Lys Asn Gln Asp Gly Lys Met	Ser Phe Gln Glu Val	Gln
145	150	155
Arg Leu Leu His Leu Met Asn Val Glu Met Asp	Gln Glu Tyr Ala Phe	
165	170	175
Ser Leu Phe Gln Ala Ala Asp Thr	Ser Gln Ser Gly Thr	Leu Glu Gly
180	185	190
Glu Glu Phe Val Gln Phe Tyr Lys Ala Leu Thr	Lys Arg Ala Glu Val	
195	200	205
Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly	Gln Lys Leu Thr Leu	
210	215	220
Leu Glu Phe Leu Asp Phe Leu Gln Glu Glu Gln	Lys Glu Arg Asp Cys	
225	230	235
Thr Ser Glu Leu Ala Leu Glu Leu Ile Asp Arg	Tyr Glu Pro Ser Asp	
245	250	255
Ser Gly Lys Leu Arg His Val Leu Ser Met Asp	Gly Phe Leu Ser Tyr	
260	265	270
Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro	Ala Cys Leu Pro Ile	
275	280	285
Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr	Phe Ile Cys Ser Ser	
290	295	300
His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys	Gly Gln Ser Ser Val	
305	310	315
Glu Gly Tyr Ile Arg Ala Leu Lys Arg Gly	Cys Arg Cys Val Glu Val	
325	330	335
Asp Val Trp Asp Gly Pro Ser Gly Glu Pro Val	Val Tyr His Gly His	
340	345	350
Thr Leu Thr Ser Arg Ile Leu Phe Lys Asp Val	Val Ala Thr Val Ala	
355	360	365
Gln Tyr Ala Phe Gln Thr Ser Asp Tyr Pro Val	Ile Leu Ser Leu Glu	
370	375	380
Thr His Cys Ser Trp Glu Gln Gln Thr Met	Ala Arg His Leu Thr	
385	390	395
Glu Ile Leu Gly Glu Gln Leu Leu Ser	Thr Thr Leu Asp Gly Val	Leu
405	410	415
Pro Thr Gln Leu Pro Ser Pro Glu Glu Leu Arg	Arg Lys Ile Leu Val	
420	425	430
Lys Gly Lys Lys Leu Thr Leu Glu Asp Leu Glu	Tyr Glu Glu Glu	
435	440	445
Glu Ala Glu Pro Glu Leu Glu Ser Glu Leu Ala	Leu Glu Ser Gln	
450	455	460
Phe Glu Thr Glu Pro Glu Pro Gln Glu Gln	Asn Leu Gln Asn Lys	Asp
465	470	475
Lys Lys Lys Ser Lys Pro Ile Leu Cys Pro	Ala Leu Ser Ser Leu	
485	490	495
Val Ile Tyr Leu Lys Ser Val Ser Phe Arg Ser	Phe Thr His Ser Lys	
500	505	510
Glu His Tyr His Phe Tyr Glu Ile Ser Ser Phe	Ser Glu Thr Lys Ala	
515	520	525
Lys Arg Leu Ile Lys Glu Ala Gly Asn Glu Phe	Val Gln His Asn Thr	
530	535	540
Trp Gln Leu Ser Arg Val Tyr Pro Ser Gly	Leu Arg Thr Asp Ser Ser	
545	550	555
Asn Tyr Asn Pro Gln Glu Leu Trp Asn Ala	Gly Cys Gln Met Val	Ala
565	570	575
Met Asn Met Gln Thr Ala Gly Leu Glu Met Asp	Ile Cys Asp Gly His	

580	585	590
Phe Arg Gln Asn Gly Gly Cys Gly Tyr Val Leu Lys Pro Asp Phe Leu		
595	600	605
Arg Asp Ile Gln Ser Ser Phe His Pro Glu Lys Pro Ile Ser Pro Phe		
610	615	620
Lys Ala Gln Thr Leu Leu Ile Gln Val Ile Ser Gly Gln Gln Leu Pro		
625	630	635
Lys Val Asp Lys Thr Lys Glu Gly Ser Ile Val Asp Pro Leu Val Lys		
645	650	655
Val Gln Ile Phe Gly Val Arg Leu Asp Thr Ala Arg Gln Glu Thr Asn		
660	665	670
Tyr Val Glu Asn Asn Gly Phe Asn Pro Tyr Trp Gly Gln Thr Leu Cys		
675	680	685
Phe Arg Val Leu Val Pro Glu Leu Ala Met Leu Arg Phe Val Val Met		
690	695	700
Asp Tyr Asp Trp Lys Ser Arg Asn Asp Phe Ile Gly Gln Tyr Thr Leu		
705	710	715
Pro Trp Thr Cys Met Gln Gln Gly Tyr Arg His Ile His Leu Leu Ser		
725	730	735
Lys Asp Gly Ile Ser Leu Arg Pro Ala Ser Ile Phe Val Tyr Ile Cys		
740	745	750
Ile Gln Glu Gly Leu Glu Gly Asp Glu Ser		
755	760	

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 cggccggccac cgggcggcag gggcttagct gcggagcccc gcggcccgaga gcggcggtta 180  
 aggagccgcg ggagccgcg aggctgcggg gcgcgcagag gagcgcctt gccccggcac 240  
 cccgctggcc acgggactcg cgtgtggcct gagcgcgggg gaggaggcgg aggcccccct 300  
 ctgtccgggc tctgggaagg caacgagggg ctctgcgaag gcggcgaggg gtcggcgcc 360  
 ggcccccggac ccctggccac catcctcacg ctccctgctcc cgccgggggg atgtcgtggc 420  
 ccggggccccc agcgccgccc cggccgggg gctgagctcc ggacc atg tcc tcc cgc 477  
 Met Ser Ser Arg  
 1

agc ccc cgg ccc ccg ccc cgc cgt agc cgc cgc cgc ctg ccg cgc ccc 525  
 Ser Pro Arg Pro Pro Arg Arg Ser Arg Arg Arg Leu Pro Arg Pro  
 5 10 15 20

tcc tgc tgc tgc tgc tgc cgc cgt tcg cac ctc aac gag gac acc 573  
 Ser Cys Cys Cys Cys Cys Arg Arg Ser His Leu Asn Glu Asp Thr  
 25 30 35

ggc cgc ttc gtg ctg ctg gcg ctc atc ggc ctc tac ctg gtg gcg 621  
 Gly Arg Phe Val Leu Leu Ala Ala Leu Ile Gly Leu Tyr Leu Val Ala  
 40 45 50

ggt gcc aca gtc ttc tcg gcg ctc gag agc ccc ggc gag gcg gag gcg 669  
 Gly Ala Thr Val Phe Ser Ala Leu Glu Ser Pro Gly Glu Ala Glu Ala  
 55 60 65

cg <sup>g</sup> gc <sup>g</sup> cg <sup>c</sup> tgg gg <sup>c</sup> gc <sup>c</sup> ac <sup>g</sup> ct <sup>g</sup> cg <sup>c</sup> aac tt <sup>c</sup> ag <sup>c</sup> gct gc <sup>g</sup> cac gg <sup>c</sup>	717
Arg Ala Arg Trp Gly Ala Thr Leu Arg Asn Phe Ser Ala Ala His Gly	
70 75 80	
gt <sup>g</sup> gc <sup>c</sup> gag cc <sup>a</sup> gag ct <sup>g</sup> cg <sup>c</sup> gc <sup>c</sup> tt <sup>c</sup> ct <sup>c</sup> cg <sup>g</sup> cac tac gag gg <sup>c</sup> gc <sup>g</sup>	765
Val Ala Glu Pro Glu Leu Arg Ala Phe Leu Arg His Tyr Glu Ala Ala	
85 90 95 100	
ct <sup>g</sup> gc <sup>c</sup> gc <sup>c</sup> gg <sup>c</sup> gt <sup>c</sup> cg <sup>c</sup> gc <sup>c</sup> gac gg <sup>c</sup> ct <sup>g</sup> cg <sup>c</sup> cc <sup>g</sup> cg <sup>c</sup> tgg gac tt <sup>c</sup>	813
Leu Ala Ala Gly Val Arg Ala Asp Ala Leu Arg Pro Arg Trp Asp Phe	
105 110 115	
cc <sup>c</sup> gg <sup>c</sup> gc <sup>c</sup> tt <sup>c</sup> tac tt <sup>c</sup> gt <sup>g</sup> gg <sup>c</sup> acc gt <sup>g</sup> gt <sup>g</sup> tca acc ata ggt tt <sup>c</sup>	861
Pro Gly Ala Phe Tyr Phe Val Gly Thr Val Val Ser Thr Ile Gly Phe	
120 125 130	
gg <sup>c</sup> at <sup>g</sup> acc acc cc <sup>c</sup> gc <sup>g</sup> ac <sup>g</sup> gt <sup>g</sup> gg <sup>c</sup> ggg aag gc <sup>c</sup> tt <sup>c</sup> ct <sup>c</sup> at <sup>c</sup> gc <sup>c</sup>	909
Gly Met Thr Thr Pro Ala Thr Val Gly Gly Lys Ala Phe Leu Ile Ala	
135 140 145	
ta <sup>c</sup> gg <sup>g</sup> ct <sup>g</sup> tt <sup>c</sup> gg <sup>c</sup> tgc gct gg <sup>g</sup> acc at <sup>c</sup> ct <sup>g</sup> tt <sup>c</sup> tt <sup>c</sup> aac ct <sup>c</sup> tt <sup>c</sup>	957
Tyr Gly Leu Phe Gly Cys Ala Gly Thr Ile Leu Phe Phe Asn Leu Phe	
150 155 160	
ct <sup>g</sup> gag cg <sup>c</sup> at <sup>c</sup> at <sup>c</sup> tc <sup>g</sup> ct <sup>g</sup> gc <sup>c</sup> tt <sup>c</sup> at <sup>c</sup> at <sup>g</sup> cg <sup>c</sup> gc <sup>c</sup> tgc cg <sup>g</sup>	1005
Leu Glu Arg Ile Ile Ser Leu Leu Ala Phe Ile Met Arg Ala Cys Arg	
165 170 175 180	
ga <sup>g</sup> cg <sup>c</sup> ca <sup>g</sup> ct <sup>g</sup> cg <sup>c</sup> cg <sup>c</sup> ag <sup>c</sup> gg <sup>c</sup> ct <sup>g</sup> ct <sup>g</sup> cc <sup>c</sup> gc <sup>c</sup> acc tt <sup>c</sup> cg <sup>c</sup> cg <sup>c</sup>	1053
Glu Arg Gln Leu Arg Arg Ser Gly Leu Leu Pro Ala Thr Phe Arg Arg	
185 190 195	
gg <sup>c</sup> tc <sup>c</sup> gc <sup>g</sup> ct <sup>c</sup> tc <sup>g</sup> gag gg <sup>c</sup> gac ag <sup>c</sup> ct <sup>g</sup> gc <sup>g</sup> gg <sup>c</sup> tgg aag cc <sup>c</sup> tc <sup>g</sup>	1101
Gly Ser Ala Leu Ser Glu Ala Asp Ser Leu Ala Gly Trp Lys Pro Ser	
200 205 210	
gt <sup>g</sup> ta <sup>c</sup> ca <sup>c</sup> gt <sup>g</sup> ct <sup>c</sup> at <sup>c</sup> ct <sup>g</sup> gg <sup>c</sup> ct <sup>g</sup> tt <sup>c</sup> gc <sup>c</sup> gt <sup>g</sup> ct <sup>g</sup> tt <sup>c</sup> tc <sup>c</sup>	1149
Val Tyr His Val Leu Leu Ile Leu Gly Leu Phe Ala Val Leu Leu Ser	
215 220 225	
tg <sup>c</sup> tg <sup>c</sup> gc <sup>c</sup> tc <sup>g</sup> gc <sup>c</sup> at <sup>g</sup> ta <sup>c</sup> ac <sup>c</sup> ag <sup>c</sup> gt <sup>g</sup> gag gg <sup>c</sup> tgg gac ta <sup>c</sup> gt <sup>g</sup>	1197
Cys Cys Ala Ser Ala Met Tyr Thr Ser Val Glu Gly Trp Asp Tyr Val	
230 235 240	
ga <sup>c</sup> tc <sup>g</sup> ct <sup>c</sup> ta <sup>c</sup> tt <sup>c</sup> tg <sup>c</sup> ac <sup>c</sup> tt <sup>c</sup> ag <sup>c</sup> ac <sup>c</sup> at <sup>c</sup> gg <sup>c</sup> tt <sup>c</sup> gg <sup>g</sup>	1245
Asp Ser Leu Tyr Phe Cys Phe Val Thr Phe Ser Thr Ile Gly Phe Gly	
245 250 255 260	
ga <sup>c</sup> ct <sup>g</sup> gt <sup>g</sup> ag <sup>c</sup> ag <sup>c</sup> ca <sup>c</sup> gg <sup>c</sup> ta <sup>c</sup> cg <sup>g</sup> aac ca <sup>c</sup> gag gg <sup>c</sup> ct <sup>c</sup> ta <sup>c</sup>	1293
Asp Leu Val Ser Ser Gln His Ala Ala Tyr Arg Asn Gln Gly Leu Tyr	
265 270 275	
cg <sup>c</sup> ct <sup>g</sup> gg <sup>c</sup> aac tt <sup>c</sup> ct <sup>c</sup> at <sup>c</sup> ct <sup>g</sup> ct <sup>c</sup> gg <sup>c</sup> gt <sup>g</sup> tg <sup>c</sup> tg <sup>c</sup> att ta <sup>c</sup>	1341
Arg Leu Gly Asn Phe Leu Phe Ile Leu Leu Gly Val Cys Cys Ile Tyr	
280 285 290	
tc <sup>g</sup> ct <sup>c</sup> tt <sup>c</sup> aac gt <sup>c</sup> at <sup>c</sup> tcc at <sup>c</sup> ct <sup>c</sup> at <sup>c</sup> aag ca <sup>c</sup> ga <sup>c</sup> gt <sup>g</sup> ct <sup>c</sup> aac tt <sup>c</sup>	1389
Ser Leu Phe Asn Val Ile Ser Ile Leu Ile Lys Gln Val Leu Asn Trp	
295 300 305	
at <sup>g</sup> ct <sup>g</sup> cg <sup>c</sup> aag ct <sup>g</sup> ag <sup>c</sup> tg <sup>c</sup> ac <sup>c</sup> tg <sup>c</sup> tg <sup>c</sup> gc <sup>g</sup> cg <sup>c</sup> tg <sup>c</sup> tg <sup>c</sup> cc <sup>c</sup> gct	1437
Met Leu Arg Lys Leu Ser Cys Arg Cys Cys Ala Arg Cys Cys Pro Ala	

310

315

320

cct ggc gcg ccc ctg gcc cg<sub>g</sub> cgc aat gcc atc acc cca ggc tcc cg<sub>g</sub> 1485  
 Pro Gly Ala Pro Leu Ala Arg Arg Asn Ala Ile Thr Pro Gly Ser Arg  
 325 330 335 340

ctg cg<sub>c</sub> cg<sub>c</sub> cg<sub>c</sub> ctg gcc g<sub>c</sub> ctc g<sub>c</sub> gac ccc g<sub>c</sub> g<sub>c</sub> g<sub>c</sub> g<sub>c</sub> 1533  
 Leu Arg Arg Arg Leu Ala Ala Leu Gly Ala Asp Pro Ala Ala Arg Asp  
 345 350 355

agc gac gcc gag ggc cg<sub>c</sub> cg<sub>c</sub> ctc tcg ggc gag ctc atc tcc atg cg<sub>c</sub> 1581  
 Ser Asp Ala Glu Gly Arg Arg Leu Ser Gly Glu Leu Ile Ser Met Arg  
 360 365 370

gac ctc acg gcc tcc aac aag gtg tcg ctg g<sub>c</sub> ctg ctg cag aag cag 1629  
 Asp Leu Thr Ala Ser Asn Lys Val Ser Leu Ala Leu Leu Gln Lys Gln  
 375 380 385

ctg tcg gag acg gcc aac g<sub>c</sub> tac ccg cg<sub>c</sub> agc gtg tgc gtc aac acg 1677  
 Leu Ser Glu Thr Ala Asn Gly Tyr Pro Arg Ser Val Cys Val Asn Thr  
 390 395 400

cg<sub>c</sub> cag aac ggc ttc tcg g<sub>c</sub> g<sub>c</sub> gtg g<sub>c</sub> g<sub>c</sub> ctg g<sub>c</sub> atc atg aac 1725  
 Arg Gln Asn Gly Phe Ser Gly Gly Val Gly Ala Leu Gly Ile Met Asn  
 405 410 415 420

aac cg<sub>c</sub> ctg gcc gag acc agc gcc tcc agg tag accgcccgtc cgcccgccc 1778  
 Asn Arg Leu Ala Glu Thr Ser Ala Ser Arg \*  
 425 430

ggggaccctc tccaggccgc gggccgccc ggcgtggttt gcttctctca gtcactgctg 1838  
 gcgctttctt aatctttatc caataaaaatg aaacaaaaaa aatttttta aagaaaaaaa 1898  
 aaaaaaaaaaag ggccggatgtt atcaaggggca ggttttgggg acgccc 1943

&lt;210&gt; 44

&lt;211&gt; 430

&lt;212&gt; PRT

&lt;213&gt; Homo Sapiens

&lt;400&gt; 44

Met	Ser	Ser	Arg	Ser	Pro	Arg	Pro	Pro	Arg	Arg	Ser	Arg	Arg	Arg	
1				5				10				15			
Leu	Pro	Arg	Pro	Ser	Cys	Cys	Cys	Cys	Cys	Cys	Arg	Arg	Ser	His	Leu
					20			25				30			
Asn	Glu	Asp	Thr	Gly	Arg	Phe	Val	Leu	Leu	Ala	Ala	Leu	Ile	Gly	Leu
					35			40				45			
Tyr	Leu	Val	Ala	Gly	Ala	Thr	Val	Phe	Ser	Ala	Leu	Glu	Ser	Pro	Gly
					50			55				60			
Glu	Ala	Glu	Ala	Arg	Ala	Arg	Trp	Gly	Ala	Thr	Leu	Arg	Asn	Phe	Ser
					65			70				75			80
Ala	Ala	His	Gly	Val	Ala	Glu	Pro	Glu	Leu	Arg	Ala	Phe	Leu	Arg	His
					85			90				95			
Tyr	Glu	Ala	Ala	Leu	Ala	Ala	Gly	Val	Arg	Ala	Asp	Ala	Leu	Arg	Pro
					100			105				110			
Arg	Trp	Asp	Phe	Pro	Gly	Ala	Phe	Tyr	Phe	Val	Gly	Thr	Val	Val	Ser
					115			120				125			
Thr	Ile	Gly	Phe	Gly	Met	Thr	Thr	Pro	Ala	Thr	Val	Gly	Gly	Lys	Ala
					130			135				140			
Phe	Leu	Ile	Ala	Tyr	Gly	Leu	Phe	Gly	Cys	Ala	Gly	Thr	Ile	Leu	Phe
					145			150				155			160
Phe	Asn	Leu	Phe	Leu	Glu	Arg	Ile	Ile	Ser	Leu	Leu	Ala	Phe	Ile	Met
					165			170				175			

Arg Ala Cys Arg Glu Arg Gln Leu Arg Arg Ser Gly Leu Leu Pro Ala  
 180 185 190  
 Thr Phe Arg Arg Gly Ser Ala Leu Ser Glu Ala Asp Ser Leu Ala Gly  
 195 200 205  
 Trp Lys Pro Ser Val Tyr His Val Leu Leu Ile Leu Gly Leu Phe Ala  
 210 215 220  
 Val Leu Leu Ser Cys Cys Ala Ser Ala Met Tyr Thr Ser Val Glu Gly  
 225 230 235 240  
 Trp Asp Tyr Val Asp Ser Leu Tyr Phe Cys Phe Val Thr Phe Ser Thr  
 245 250 255  
 Ile Gly Phe Gly Asp Leu Val Ser Ser Gln His Ala Ala Tyr Arg Asn  
 260 265 270  
 Gln Gly Leu Tyr Arg Leu Gly Asn Phe Leu Phe Ile Leu Leu Gly Val  
 275 280 285  
 Cys Cys Ile Tyr Ser Leu Phe Asn Val Ile Ser Ile Leu Ile Lys Gln  
 290 295 300  
 Val Leu Asn Trp Met Leu Arg Lys Leu Ser Cys Arg Cys Cys Ala Arg  
 305 310 315 320  
 Cys Cys Pro Ala Pro Gly Ala Pro Leu Ala Arg Arg Asn Ala Ile Thr  
 325 330 335  
 Pro Gly Ser Arg Leu Arg Arg Arg Leu Ala Ala Leu Gly Ala Asp Pro  
 340 345 350  
 Ala Ala Arg Asp Ser Asp Ala Glu Gly Arg Arg Leu Ser Gly Glu Leu  
 355 360 365  
 Ile Ser Met Arg Asp Leu Thr Ala Ser Asn Lys Val Ser Leu Ala Leu  
 370 375 380  
 Leu Gln Lys Gln Leu Ser Glu Thr Ala Asn Gly Tyr Pro Arg Ser Val  
 385 390 395 400  
 Cys Val Asn Thr Arg Gln Asn Gly Phe Ser Gly Gly Val Gly Ala Leu  
 405 410 415  
 Gly Ile Met Asn Asn Arg Leu Ala Glu Thr Ser Ala Ser Arg  
 420 425 430

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<212> DNA

<213> Homo Sapiens

<220>

<221> CDS

<222> (233)...(2260)

<400> 45

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 tctccctcct tacaaccacc gccacctcct agtgccttag aagccactga cagccccag 180  
 ggcaggtgag ccctgcatct ggaataagga tccagaggc tcgttcagga cc atg gag 238  
 Met Glu  
 1

agc ggc acc agc agc cct cag cct cca cag tta gat ccc ctg gat gcg 286  
 Ser Gly Thr Ser Ser Pro Gln Pro Pro Gln Leu Asp Pro Leu Asp Ala  
 5 10 15

ttt ccc cag aag ggc ttg gag cct ggg gac atc gcg gtg cta gtt ctg 334  
 Phe Pro Gln Lys Gly Leu Glu Pro Gly Asp Ile Ala Val Leu Val Leu  
 20 25 30

tac ttc ctc ttt gtc ctg gct gtt gga cta tgg tcc aca gtg aag acc 382  
 Tyr Phe Leu Phe Val Leu Ala Val Gly Leu Trp Ser Thr Val Lys Thr  
 35 40 45 50

aaa aga gac aca gtg aaa ggc tac ttc ctg gct gga ggg gac atg gtg	430
Lys Arg Asp Thr Val Lys Gly Tyr Phe Leu Ala Gly Gly Asp Met Val	
55 60 65	
tgg tgg cca gtg ggt gca tcc ttg ttt gcc agc aat gtt gga agt gga	478
Trp Trp Pro Val Gly Ala Ser Leu Phe Ala Ser Asn Val Gly Ser Gly	
70 75 80	
cat ttc att ggc ctg gca ggg tca ggt gct gct acg ggc att tct gta	526
His Phe Ile Gly Leu Ala Gly Ser Gly Ala Ala Thr Gly Ile Ser Val	
85 90 95	
tca gct tat gaa ctt aat ggc ttg ttt tct gtg ctg atg ttg gcc tgg	574
Ser Ala Tyr Glu Leu Asn Gly Leu Phe Ser Val Leu Met Leu Ala Trp	
100 105 110	
atc ttc cta ccc atc tac att gct ggt cag gtc acc acg atg cca gaa	622
Ile Phe Leu Pro Ile Tyr Ile Ala Gly Gln Val Thr Thr Met Pro Glu	
115 120 125 130	
tac cta cgg aag cgc ttc ggt ggc atc aga atc ccc atc atc ctg gct	670
Tyr Leu Arg Lys Arg Phe Gly Gly Ile Arg Ile Pro Ile Ile Leu Ala	
135 140 145	
gta ctc tac cta ttt atc tac atc ttc acc aag atc tcg gta gac atg	718
Val Leu Tyr Leu Phe Ile Tyr Ile Phe Thr Lys Ile Ser Val Asp Met	
150 155 160	
tat gca ggt gcc atc ttc atc cag cag tct ttg cac ctg gat ctg tac	766
Tyr Ala Gly Ala Ile Phe Ile Gln Gln Ser Leu His Leu Asp Leu Tyr	
165 170 175	
ctg gcc ata gtt ggg cta ctg gcc atc act gct gta tac acg gtt gct	814
Leu Ala Ile Val Gly Leu Leu Ala Ile Thr Ala Val Tyr Thr Val Ala	
180 185 190	
ggt ggc ctg gct gtc atc tac acg gat gcc ctg cag acg ctg atc	862
Gly Gly Leu Ala Ala Val Ile Tyr Thr Asp Ala Leu Gln Thr Leu Ile	
195 200 205 210	
atg ctt ata gga gcg ctc acc ttg atg ggc tac agt ttt gcc gcg gtt	910
Met Leu Ile Gly Ala Leu Thr Leu Met Gly Tyr Ser Phe Ala Ala Val	
215 220 225	
ggt ggg atg gaa gga ctg aag gag aag tac ttc ttg gcc ctg gct agc	958
Gly Gly Met Glu Gly Leu Lys Glu Lys Tyr Phe Leu Ala Leu Ala Ser	
230 235 240	
aac cgg agt gag aac agc agc tgc ggg ctg ccc cgg gaa gat gcc ttc	1006
Asn Arg Ser Glu Asn Ser Ser Cys Gly Leu Pro Arg Glu Asp Ala Phe	
245 250 255	
cat att ttc cga gat ccg ctg aca tct gat ctc ccg tgg ccg ggg gtc	1054
His Ile Phe Arg Asp Pro Leu Thr Ser Asp Leu Pro Trp Pro Gly Val	
260 265 270	
cta ttt gga atg tcc atc cca tcc ctc tgg tac tgg tgc acg gat cag	1102
Leu Phe Gly Met Ser Ile Pro Ser Leu Trp Tyr Trp Cys Thr Asp Gln	
275 280 285 290	
gtg att gtc cag cgg act ctg gct gcc aag aac ctg tcc cat gcc aaa	1150

Val Ile Val Gln Arg Thr Leu Ala Ala Lys Asn Leu Ser His Ala Lys			
295	300	305	
gga ggt gct ctg atg gct gca tac ctg aag gtg ctg ccc ctc ttc ata	1198		
Gly Gly Ala Leu Met Ala Ala Tyr Leu Lys Val Leu Pro Leu Phe Ile			
310	315	320	
atg gtg ttc cct ggg atg gtc agc cgc atc ctc ttc cca gat caa gtg	1246		
Met Val Phe Pro Gly Met Val Ser Arg Ile Leu Phe Pro Asp Gln Val			
325	330	335	
gcc tgt gca gat cca gag atc tgc cag aag atc tgc agc aac ccc tca	1294		
Ala Cys Ala Asp Pro Glu Ile Cys Gln Lys Ile Cys Ser Asn Pro Ser			
340	345	350	
ggc tgt tcg gac atc gcg tat ccc aaa ctc gtg ctg gaa ctc ctg ccc	1342		
Gly Cys Ser Asp Ile Ala Tyr Pro Lys Leu Val Leu Glu Leu Leu Pro			
355	360	365	370
aca ggg ctc cgt ggg ctg atg atg gct gtg atg gtg gcg gct ctc atg	1390		
Thr Gly Leu Arg Gly Leu Met Met Ala Val Met Val Ala Ala Leu Met			
375	380	385	
tcc tcc ctc acc tcc atc ttt aac agt gcc agc acc atc ttc acc atg	1438		
Ser Ser Leu Thr Ser Ile Phe Asn Ser Ala Ser Thr Ile Phe Thr Met			
390	395	400	
gac ctc tgg aat cac ctc cgg cct cgg gca tct gag aag gag ctc atg	1486		
Asp Leu Trp Asn His Leu Arg Pro Arg Ala Ser Glu Lys Glu Leu Met			
405	410	415	
att gtg ggc agg gtg ttt gtg ctg ctg gtc ctg gtc tcc atc ctc	1534		
Ile Val Gly Arg Val Phe Val Leu Leu Leu Val Leu Val Ser Ile Leu			
420	425	430	
tgg atc cct gtg gtc cag gcc agc cag ggc ggc cag ctc ttc atc tat	1582		
Trp Ile Pro Val Val Gln Ala Ser Gln Gly Gly Gln Leu Phe Ile Tyr			
435	440	445	450
atc cag tcc atc agc tcc tac ctg cag ccg cct gtg gcg gtg gtc ttc	1630		
Ile Gln Ser Ile Ser Ser Tyr Leu Gln Pro Pro Val Ala Val Val Phe			
455	460	465	
atc atg gga tgt ttc tgg aag agg acc aat gaa aag ggt gcc ttc tgg	1678		
Ile Met Gly Cys Phe Trp Lys Arg Thr Asn Glu Lys Gly Ala Phe Trp			
470	475	480	
ggc ctg atc tcg ggc ctg ctc ctg ggc ttg gtt agg ctg gtc ctg gac	1726		
Gly Leu Ile Ser Gly Leu Leu Gly Leu Val Arg Leu Val Leu Asp			
485	490	495	
ttt att tac gtg cag cct cga tgc gac cag cca gat gag cgc ccg gtc	1774		
Phe Ile Tyr Val Gln Pro Arg Cys Asp Gln Pro Asp Glu Arg Pro Val			
500	505	510	
ctg gtg aag agc att cac tac ctc tac ttc tcc atg atc ctg tcc acg	1822		
Leu Val Lys Ser Ile His Tyr Leu Tyr Phe Ser Met Ile Leu Ser Thr			
515	520	525	530
gtc acc ctc atc act gtc tcc acc gtg agc tgg ttc aca gag cca ccc	1870		
Val Thr Leu Ile Thr Val Ser Thr Val Ser Trp Phe Thr Glu Pro Pro			
535	540	545	

tcc aag gag atg gtc agc cac ctg acc tgg ttt act cgt cac gac ccc Ser Lys Glu Met Val Ser His Leu Thr Trp Phe Thr Arg His Asp Pro 550 555 560	1918
gtg gtc cag aagcaa gca cca gca gct ccc ttg tct ctt acc Val Val Gln Lys Glu Gln Ala Pro Pro Ala Ala Pro Leu Ser Leu Thr 565 570 575	1966
ctc tct cag aac ggg atg cca gag gcc agc agc agc agc gtc cag Leu Ser Gln Asn Gly Met Pro Glu Ala Ser Ser Ser Ser Val Gln 580 585 590	2014
ttc gag atg gtt caa gaa aac acg tct aaa acc cac agc tgt gac atg Phe Glu Met Val Gln Glu Asn Thr Ser Lys Thr His Ser Cys Asp Met 595 600 605 610	2062
acc cca aag cag tcc aaa gtg gtg aag gcc atc ctg tgg ctc tgt gga Thr Pro Lys Gln Ser Lys Val Val Lys Ala Ile Leu Trp Leu Cys Gly 615 620 625	2110
ata cag gag aag ggc aag gaa gag ctc ccg gcc aga gca gaa gcc atc Ile Gln Glu Lys Gly Lys Glu Glu Leu Pro Ala Arg Ala Glu Ala Ile 630 635 640	2158
ata gtt tcc ctg gaa gaa aac ccc ttg gtg aag acc ctc ctg gac gtc Ile Val Ser Leu Glu Glu Asn Pro Leu Val Lys Thr Leu Leu Asp Val 645 650 655	2206
aac ctc att ttc tgc gtg agc tgc gcc atc ttt atc tgg ggc tat ttt Asn Leu Ile Phe Cys Val Ser Cys Ala Ile Phe Ile Trp Gly Tyr Phe 660 665 670	2254
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Pro Glu Tyr Leu Arg Lys Arg Phe Gly Gly Ile Arg Ile Pro Ile Ile  
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 Leu Ala Val Leu Tyr Leu Phe Ile Tyr Ile Phe Thr Lys Ile Ser Val  
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 Asp Met Tyr Ala Gly Ala Ile Phe Ile Gln Gln Ser Leu His Leu Asp  
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 Val Ala Gly Gly Leu Ala Ala Val Ile Tyr Thr Asp Ala Leu Gln Thr  
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 Ala Val Gly Gly Met Glu Gly Leu Lys Glu Lys Tyr Phe Leu Ala Leu  
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 245 250 255  
 Ala Phe His Ile Phe Arg Asp Pro Leu Thr Ser Asp Leu Pro Trp Pro  
 260 265 270  
 Gly Val Leu Phe Gly Met Ser Ile Pro Ser Leu Trp Tyr Trp Cys Thr  
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 Asp Gln Val Ile Val Gln Arg Thr Leu Ala Ala Lys Asn Leu Ser His  
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 Pro Ser Gly Cys Ser Asp Ile Ala Tyr Pro Lys Leu Val Leu Glu Leu  
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 Ile Tyr Ile Gln Ser Ile Ser Ser Tyr Leu Gln Pro Pro Val Ala Val  
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 Pro Pro Ser Lys Glu Met Val Ser His Leu Thr Trp Phe Thr Arg His  
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 Asp Pro Val Val Gln Lys Glu Gln Ala Pro Pro Ala Ala Pro Leu Ser  
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 Asp Met Thr Pro Lys Gln Ser Lys Val Val Lys Ala Ile Leu Trp Leu  
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Cys Gly Ile Gln Glu Lys Gly Lys Glu Glu Leu Pro Ala Arg Ala Glu  
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Ala Ile Ile Val Ser Leu Glu Glu Asn Pro Leu Val Lys Thr Leu Leu  
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Tyr Phe Ala  
675